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Chicago: Center for New Financial Instruments?

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Ever since Frank Norris immortalized the workings of the Chicago Board of Trade in *The Pit*, Chicago has been, in the public mind, the center of agricultural finance. Now, a rapidly expanding list of new financial instruments, and the possible introduction of many more, could bring Chicago to the fore as the central market for financial innovations.

Two Chicago exchanges, the Board of Trade and the Mercantile Exchange, have taken the lead in the new financial futures, becoming the first and only markets in which to trade futures on Treasury Bills, notes and bonds, GNMAs, bank CDs, and an S&P 500 index. A third Chicago exchange, the Chicago Board Options Exchange, has received approval on a new GNMA option, and is seeking permission to trade options on Treasury issues. Further, the Board of Trade and the Merc have applications pending for still more new trading instruments, including futures on stock portfolios and Eurobank CDs, and options on the GNMA, the stock index future, Treasury futures, and foreign currency futures.

Each of the new instruments has its own arcane set of trading rules and trading language, and the possibilities for profit depend on the characteristics of the particular asset underlying the option or future, as well as on the particular trading rules involved in each. What follows is a brief introduction to the primary characteristics, advantages, and disadvantages of the newest financial instruments and their use in investment strategies.

At present, all of the new trading instruments are futures. All futures, no matter what commodity they are written on, share certain common features. A future is essentially a promise to buy (go long) or sell (go short) a specified commodity at a currently determined market price (the futures price) for delivery at a specified future date. A margin deposit, usually 10 percent of the full payment for the commodity, is required of the buyer or seller of the futures contract as a guarantee of performance of the contract. Thus, trading a future contract differs from trading an option or a share of stock in that a future is not an asset in itself but merely a promise to perform, backed by a security deposit. After the initial margin is deposited with the brokerage firm, the customer's account is settled daily (marked to the market): the profit or loss from a change in the contract price of the future is credited or debited to the account at the end of each day. A customer is free to withdraw any profits in excess of an agreed-upon maintenance level and must make immediate payment if the account falls below this amount. Currently, very few futures (around 1 percent) actually result in a delivery; the buyer (seller) usually liquidates his position before the expiration date by selling (buying) an offsetting future.

As an example of the mechanics of trading, consider an investor who believes the stock market will reach a low by the end of the week. He sells short an October futures contract on the S&P 500 index trading on the Chicago Mercantile Exchange. The futures price is determined from the S&P index at the time he sells, and is $500 multiplied by the index number. With the S&P 500 at 117.20, the futures price is $500 × 117.20, or $58,600. Thus, each point change in the index means a $500 change in the futures price. The index moves in "ticks" of 5/100 of a point, with the futures price changing by .05 × $500, or $25. The investor's margin deposit with his broker will be 10 percent of the full amount, or $5,860. If after one day, the index has advanced to 119.40, the investor must make good on the loss in his short position, which amounts to 2.20 points × $500, or $1,100. Thus, the large leverage involved in futures contracts can quickly become dangerous if the market runs contrary to expectations. If our investor hangs on until the next day, the expiration day, his account will be settled in cash. The index future is unique in that all futures held until expiration are settled in cash rather

Real Estate Developments *By Charles R. McGuire* / *Page 4*
Consumer Airline Service in Illinois *By J. Gregory Parrish* / *Page 7*

than for delivery; thus, there is little danger of finding a basket of S&P 500 securities on the doorstep at the end of the month. If the index on the last day of trading in October stands at 110.00, the futures contract would now be worth $55,000. Depending on the account balance from the previous day, a transfer of funds will be made and the account will be closed (see Table 1).

While futures on the S&P index and most government securities are quoted in the straightforward manner outlined above, the Chicago Mercantile Exchange has devised an unusual quoting system for Treasury Bill futures. Since T Bills, unlike bonds or notes, trade according to a quoted yield (such as 9 percent) which in turn determines the discounted amount an investor would pay to purchase the bill (with the full amount, $1,000,000, paid to the holder at maturity), T-Bill futures prices are quoted on the basis of the difference between the T-Bill yield and 100.00. Thus, a T Bill whose yield is quoted in the market at 12 percent would result in a futures price of $100.00 less 12, or $88.00. In this way, a decline in interest rates (for example, from 12 percent to 9 percent) results in an increase in the index from 88.0 to 91.0, reflecting the fact that the dollar price of a T Bill and the value of the future rises with declining interest rates.

As an example, an investor who accurately forecasts the general decline in interest rates over August of 1982 might buy a September T-Bill future. Purchasing the future at 85.0 (representing a T-Bill yield at the time of 15 percent), the investor would profit from the subsequent decline in interest rates. If he closed out his position at the end of August (by selling a T-Bill future) when T-Bill yields were around 8.5 percent, the T-Bill future he sold would be based on an index of 91.5, for a net gain of 5.5 index points. Price fluctuations on the T-Bill futures are quoted in multiples of .01 of the index, so that a .01 change in the price represents .01 of a $1,000,000, 90-day T Bill, or $25.

While there are as many ways to use a future as there are individual financial circumstances, their use in all cases conforms to two cardinal rules: when the commodity price is expected to go up, buy the future; if the commodity price will go down, sell the future. The trades outlined earlier represent the most basic uses for a futures contract. When an investor anticipates a decline in the value of the underlying commodity, he sells the future short (the basic bear strategy), and either waits for expiration or closes out his contract by buying an offsetting future. A simple bull strategy would involve buying a future in anticipation of a rise in the value of the underlying commodity. With financial futures, a rise in the value of the underlying commodity, an interest-paying instrument, comes about through a decline in interest rates. Thus, a bear strategy on a GNMA future would involve selling the future short in anticipation of a rise in interest rates and a decline in the price of a GNMA.

Table 1

An Investor Will Sell Futures Short in Anticipation of a Declining Index

Short Position, S&P 500 Stock Index Future

	Stock Index	Contract Value	Adjustment Mark to Market	Investor's Equity
day 1	117.20	$500x117.20 = $58,600		10% x $58,600 = $5,860
day 2	119.40	$500x119.40 = $59,700	(2.2 Pts. x $500 = $1,100)	$6,960
day 3 (expiration)	110.00	$500x110.00 = $55,000	19.4 Pts. x $500 = $7,700	

Investor's Profit $7,700 - $6,960 = $740

An Investor will buy a future in anticipation of an increase in bond prices (decline in interest rates)

In May: Buy one T bill future

T Bill Yield	IMM Index	Contract Value	Investor's Equity	Investor's Profit
15%	100.0-15 = 85.0	$1,000,000x.85 = $850,000	10%x$850,000 = $ 85,000	

In August: Sell one T bill future

T Bill Yield	IMM Index	Contract Value		
9%	100.0- 9 = 91.0	$1,000,000x.91 = $910,000		$910,000 - $850,000 = $60,000 on original equity of $85,000

Other uses for futures involve hedging, an attempt to reduce the risk of price fluctuations in the underlying commodity through purchase or sale of a future. For instance, a bank could hedge against a fall in interest rates by buying an interest rate future. Similarly, a person investing in a stock portfolio for its long-term returns could hedge against a short-run decline in stock value by selling a stock-index future short. Depending on how close the movements in price of the commodity and the future prove to be, a decline in the value of one can be offset partially or completely by the increase in value of the other. In addition, the margin requirement for a future in a hedge position is 5 percent rather than the 10 percent for speculators.

For instance, an investor might plan to make a major stock purchase when he receives his income tax refund around April. To protect himself against a possible increase in stock prices before he can buy his stock, the investor could buy a March stock index future. If the investor is right about his price projections, the stock index future will advance by the end of March, and the

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resulting profit on that transaction will offset the higher prices he must now pay for his stock purchases.

Similarly, a businessman who anticipates the need to borrow a large sum six months from now could protect himself against a rise in interest rates between now and then by selling an interest rate future short. If interest rates do rise in the six months, the added cost of borrowing at a higher rate will be offset by the profit made on selling the future short and subsequently closing out the futures position by buying one at a lower price.

While it is theoretically possible to construct a perfect hedge, one in which the amount lost is exactly equal to the amount gained, certain factors can mitigate this exact matching. The price of the future may not trace the commodity price perfectly. With interest rate futures in particular, such issues as unequal coupon rates or maturities between the actual commodity hedged, for instance a six-month small business loan, and the commodity underlying the future, like the three-month US Treasury Bill, will cause the actual dollar amounts involved to be mismatched. In addition, if the market or interest rates move contrary to expectations, the investor might have been better off without the hedge in the first place.

While interest rate futures involve a sizeable margin requirement, the new stock index future opens up a variety of opportunities previously unavailable to the average investor. A stock index future lets the investor literally buy the market, allowing him to match the performance of the market itself. If it is indeed impossible to beat the market, as financial analysts say, investment in the index future is like investing in a market mutual fund or index fund, a purchase usually unavailable to a small investor. In addition, the index future enables an investor to hedge against systematic risk, the type of risk that is market-wide and cannot be diversified away in a stock portfolio. Since systematic risk can constitute a large component of a stock's price volatility, the index future can be used in some cases to hedge against an individual stock. In addition, an investor can use the index future to hedge against an unusually volatile stock; a stock which is twice as volatile on average as the general market could be hedged by two index futures.

If the Chicago Board of Trade is granted permission to trade them, futures on more limited groups of stocks could become available. Then futures could allow the investor to anticipate and profit from price changes in specialized areas of the economy, such as energy and oil, transportation, or manufacturing.

Many of the proposed financial instruments are options on either an interest-bearing asset such as a T Bill, or on a future. For instance, the Chicago Mercantile Exchange has proposed an option on the S&P 500 index future, an asset representing the ability, if executed, to buy or sell a future on the stock index at a certain price.

Options can be more appealing to the average investor than futures. Like a future, an option represents the ability to control a sizeable position in a "commodity" with a limited amount of money paid out. With an option, however, the possibility of future demand for money, the "marking to the market" of the future, is gone. Thus, options can be less risky than futures in that the losses are limited to the initial purchase price of the option. This lack of margin-call exposure may open up trading in the stock index to the smaller investor. The investor's downside risk of loss is diminished with an option without lessening the upside potential. A floor on profits can be established for a hedge without eliminating the possibility of gain from favorable movements in the price. Also, since there is less pressure to close out a position if events are contrary to expectations, the option holder has an increased ability to hold the contract longer in anticipation of an eventual profit. In addition, the options are "American," in that exercise can occur at any time, while a futures contract is performed only at expiration. Thus, the investor can acquire control of the underlying commodity at his discretion.

The growth in the number of new financial instruments depends on a number of complicated issues. For instance, permission to trade many of the new instruments has been postponed while the SEC and CFTC grapple with questions of jurisdiction. For instance, which agency should control the options on futures, the SEC, which now regulates options, or the CFTC, which controls futures? Conflicting claims to trading rights of the Chicago exchanges must also be settled.

When the SEC granted approval to the CBOE to trade options in GNMAs in 1981, the CBOT filed suit to block the contract, arguing that the CBOT, which trades GNMA futures, should also have jurisdiction over the options. Trading in the GNMA options has been postponed until the suit is settled. There is also a continuing controversy over the effects of options and futures trading. Is the trading in futures the gambling activity Keynes said it was? Does it divert resources from direct stock investment in corporations and productive uses into more speculative activity, which weaken the economy? Or do the new financial instruments provide, as the exchanges have argued, valuable price information and a needed marketplace in which to transfer risk from producers and borrowers to the professional market makers? Since the issue is almost impossible to decide — no one can be sure of the underlying motives of the investing public or the intrinsic worth of trading opportunities — the Chicago exchanges are hard at work to be the first to offer attractive new opportunities. Their success could serve to shift a large share of investment activity from Wall Street to new quarters in Illinois.

Real Estate Developments

Due-On-Sale Clauses in Mortgages: Impact of the *De La Cuesta* Decision on State Restrictions

CHARLES R. McGUIRE

Rising interest rates on real estate mortgages have had countless effects on our economy and our society, not the least of which is a 28 June 1982 Supreme Court decision approving federal regulation of at least one phase of local real estate contracts. The decision, entitled *Fidelity Federal Savings and Loan Association* v. *de la Cuesta* (Case No. 81-750) allows the Federal Home Loan Bank Board to maintain regulations regarding the so-called "due-on-sale" clause found in many real estate mortgages. While the full import of the decision is yet to be felt, the decision may well be the beginning of what Justice Rehnquist called in dissent "... a federal common law of mortgages ..." and may signal an intrusion into "... the domain of state property and contract law that Congress has left to the States."

Due-on-sale clauses are relatively simple provisions in mortgages which provide that if the mortgaged property is sold or transferred, the lender may at his option declare the entire mortgage balance due and payable. Such clauses are found in the great majority of mortgages and came into fashion as "boiler plate" language at least 20 years ago, prior to the present real estate crisis and the problems of high interest and tight money.

It seems clear that the original purpose of the due-on-sale clause was to protect the lender from uncreditworthy persons who might purchase the property subject to the mortgage, and to provide further protection from persons who might waste or destroy the property, thereby lessening the value of the security of the loan. Under such circumstances, all courts have held that lenders have the right under a due-on-sale clause to accelerate the mortgage and declare the entire debt due immediately.

As long as conventional financing was available and interest rates were reasonably low, the due-on-sale clause presented no problem. But as mortgage money became unavailable and interest rates rose dramatically, buyers and sellers began to resort to so-called "creative" financing techniques, including contract for deed and mortgage assumptions. Such modes of financing usually involve retention of the existing mortgage as a basis for financing the sale, relying on the lower interest rates of that mortgage to avoid current rates.

During the mid 1970s, lenders began to use the broad language of the due-on-sale clause to fight creative financing. As interest rates began to climb, lenders found it to their advantage to terminate those existing loans which maintained a fixed interest rate lower than the present cost of mortgage money. Thus, when an owner of property subject to a low-interest loan wished to transfer his property, his mortgage often maintained that it has the right to accelerate the debt and require that the mortgage be retired. The lender then was free to lend those funds at a higher rate, thereby enhancing the yield of its mortgage portfolio. The use of the clause acquired the title "the money market rationale."

The most common alternative financing technique, the contract for sale, is illustrative of the process and the problem. In such a transaction, the seller agrees to give title to the property upon payment of the full purchase price for the property. The purchaser makes payments to the seller, and the seller makes his original mortgage payments to the lender. The interest paid by the purchaser to the seller is usually higher than the seller's mortgage rate, but lower than the current rate charged by institutional lenders, assuming mortgage money is available at all.

But even though the seller remains liable for the mortgage, and even though the seller also has a substantial interest in preventing waste of the property, thereby probably making the lender more secure than prior to the transaction, the contract for sale is still considered a "transfer" of property within the meaning of the clause. Upon learning of the transaction, the lender may foreclose on the property by accelerating the debt and demanding full payment.

As a matter of fact, such foreclosures are rare. The lender usually offers to "renegotiate" the interest rate up to present levels, only implicitly threatening acceleration and foreclosure in the event the seller, and by extension the buyer, fails to negotiate. Such uses of the clause caused one appellate judge in North Carolina to call the due-on-sale "a loan shark's trap for the unwary borrower" and "sheer extortion."

State Restrictions

The few cases heard by the courts prior to the 1970s had assumed that the clause was valid since the parties had entered into the contract voluntarily and should therefore live by the terms of their agreement. But during the mid 1970s borrowers constructed a novel argument based upon an ancient common law theory, the "restraints on alienation" doctrine.

While the origins of his hoary rule are obscure and lost in the primeval mists of the English common law, its purpose is plain. The protection of private property is paramount, and one of the prime components of property rights is the right to transfer one's property however, and to whomever, one pleases. The doctrine held

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simply that restraints on alienation of land are void. That is, any contract provision which attempts to dictate to the owner of property how or to whom he may sell his property, or that he may not sell it all, is unenforceable.

Owners of property subject to a mortgage containing a due-on-sale clause were quick to make the ancient doctrine their own, claiming the clause was void as such a restraint on alienation. The clause seemed to fit within the framework of the doctrine, since it refused to permit a sale unless the mortgage was paid.

Most courts, including those in Illinois, held that the clause was a restraint on alienation, but that it was a "reasonable" restraint, and permitted enforcement of the clause. A small but vocal minority of states disagreed, however, led by California in the famous case of *Wellenkamp* v. *Bank of America* (582 P.2d 970 [1975]). That decision held that the clause might be enforced to guard against security impairment and waste, but not to maintain the profit margin of the association's mortgage portfolio. A few states refused to consider the clause as a restraint on alienation at all, and permitted free enforcement of the clause.

During the late 1970s, the legislatures of five states (California, Colorado, Georgia, Minnesota, and New Mexico) joined in the fray by passing statutes outlawing enforcement for money market purposes, though all five retained the right to enforce the clause for security-impairment purposes. A 1981 attempt to pass such a statute in Illinois met what the bill's sponsor termed "heavy-duty resistance" and stalled in committee.

Thus, while a majority of states, including Illinois, permitted blanket enforcement of the due-on-sale clause, a small and growing minority of states refused to permit enforcement of the clause for money market purposes, either because of a legislative determination that enforcement was unfair and contrary to the public will, or because of a judicial determination that exercise of the clause was an unreasonable restriction on the rights of private property.

Federal Regulation of the Due-on-Sale

Paralleling these developments in the state courts and legislatures was the development of administrative regulations and federal court decisions which clearly conflicted with state court restrictions on the clause. In 1976, the Federal Home Loan Bank Board (FHLBB), the agency charged by Congress with protection of the savings and loan industry, issued regulations which permitted federally chartered savings and loan associations to enforce due-on-sale clauses if they deemed it proper to include such a clause in their loan contracts, with some very limited exceptions. This federal regulation, 12 C.F.R.545.8-3(f) and (g), has become the major battleground in the continuing war between owners and lenders.

The obvious problem is which rule governs, especially in states which restrict enforcement of the clause. The problem is one of "preemption" by federal law. This constitutional doctrine is based upon the Supremacy Clause of the Constitution, Article VI, clause 2, which provides that the laws of the US are senior to those of the states, and if there is a conflict between a state law and a federal law, the federal law must govern. However, determination of the existence of an actual conflict is complex and depends on questions of Congressional intent, compounded by the issue of whether an administrative regulation may preempt state law. Based on these and other questions, at least three states ruled that the FHLBB regulation was of no effect, and state restrictions remained effective.

The US Supreme Court resolved the issues on 28 June 1982 in the case of *Fidelity Federal Savings and Loan Association* v. *de la Cuesta*. By a six to two majority the Court ruled that the FHLBB regulation did preempt existing and conflicting state law governing the due-on-sale clause. Of necessity the decision only related to federally chartered savings and loans, leaving states free to regulate the impact of the clause in mortgages made by state-chartered institutions.

The Court's opinion, written by Justice Blackman, first noted that federal regulations have the same preemptive effect as federal statutes, and that this preemptive effect does not depend on any express Congressional permission to the agency to preempt such laws. The Court then found that the FHLBB clearly intended to preempt state statutes and decisions, by its clear language. The Court concluded by finding that the Board's action was within its discretion and was neither arbitrary nor capricious, though the Court recognized that "the wisdom of the Board's decision is not uncontroverted." Since courts dislike substituting their judgment for that of an administrative agency, the regulation would be held valid.

Justice O'Connor concurred in the decision, but wrote a short opinion in which she emphasized that nothing should be read to permit the Board to displace local laws, such as tax statutes and zoning ordinances, which are not directly related to savings and loan practices. Justices Rehnquist and Stevens dissented on that very ground, stating that the FHLBB had exceeded its authority by regulating, not the practices and operations of savings and loans, but state contract and mortgage law.

With the *de la Cuesta* decision, the lenders have their victory, and it is certain that at least in all federal savings and loans, and at least for the foreseeable future, the due-on-sale clause will be enforceable for all purposes, including portfolio management.

Economic Impact of *de la Cuesta*

Central to the debate over the due-on-sale clause has been an economic squabble between those favoring the thrift industry and those favoring the real estate industry. The former argue that free enforcement of the due-on-sale clause is essential to the future vitality of the savings and loan business, while the latter plead that free enforcement will effectively kill what little remains of the once-thriving real estate market.

As to the first contention, almost everyone would agree that retiring low yield loans will clearly have a beneficial impact on ailing thrift associations. It is obvious that the savings and loans have not had an easy time of it in recent years. Rising interest rates and the competition of government bonds for the liquid funds of investors have had a sore impact on institutions whose chief investments are long-term, fixed-rate mortgages. According to the Final Report of the Task Force on Due-on-Sale established by the FHLBB to study the problem, due-on-sale enforceability is essential to maintain a healthy thrift industry in the face of such problems, and in fact restrictions on the clause had caused some of the troubles.

The Report found that if the clause was not effective nationwide, such state restrictions would cost the savings and loan industry from $600 to $800 million annually for federally chartered associations alone, and some $1.0 to $1.3 billion annually for the whole thrift industry. The Report found that state restrictions were "contributing substantially" to the present ailments of the thrift industry. It seems axiomatic to say retirement of low-interest loans in favor of high interest loans can only help the profit picture of the thrift industry.

On the other hand, the real estate industry feels, perhaps with justification, that it is being sacrificed for the benefit of the savings and loans. This viewpoint was perhaps best summarized by the Court in *de la Cuesta:* "Those subscribing to the opposite view contend that the unrestricted exercise of the due-on-sale clause may preclude the assumption of mortgages at lower interest rates, thus preventing the sale of homes and transferring the burden of an inflationary market from the lender to the homeowner and prospective homeowner."

In effect, *de la Cuesta* closes down the creative real estate market by forcing buyers to pay the current rate of interest regardless of the type of financing arranged. Those persons who were precluded from the conventional real estate market by high interest rates will also be precluded from the creative market by the same obstacle. According to an official of the National Association of Realtors, we may expect a further drop in housing sales of from 20 to 30 percent as a result.

According to the Task Force Report, the only party to benefit by restrictions of due-on-sale are homeowners with an assumable mortgage. This may be true over the long run, since when interest rates come down the real estate industry may "make up" for these lean years. But in the short run, while interest rates remain high, it seems obvious that the real estate profession will have substantial casualties.

The Task Force also concluded that first-time home buyers were being penalized by restrictions on due-on-sale, since they could not afford the substantial downpayment required when a loan is assumed. Since the due-on-sale ultimately results in some lowering of interest rates, those buyers are penalized even further. The Report ignored the common practice of seller financing of all or a part of the difference between the asking price and the assumed mortgage, however.

A final consequence of *de la Cuesta* is far more insidious and of perhaps greater consequence than these short-run economic arguments. Interest rates will come down someday, or the American people will learn to accept high rates, or, more likely, a little of both will occur. The real estate market will return, perhaps not in the same form and probably not to the same degree as in the "glory years" of the 1960s and early 1970s, but houses will sell again. The problems of the savings and loans will be solved, perhaps by reduction in competition by federal bonds, perhaps by increased demand for money, and probably again by a combination of the two. But the *de la Cuesta* case will remain, a symbol of the right of federal agencies to tell the states how to regulate private property, contract, and mortgage law.

de la Cuesta may be the thin edge of the Federal wedge of intervention in what has been a conventional arena for state regulation. With the arguably laudable purpose of aiding the afflicted savings and loan industry, the FHLBB and the Supreme Court may have begun our descent down the slippery slide toward a federal common law of mortgages.

In Illinois, *de la Cuesta* will have little impact at all, since the law in the state clearly allowed enforcement even before the Supreme Court action. Other state decisions have made it clear that any form of transfer, including contracts for sale and transfers to a land trust, would trigger enforcement of the clause; *de la Cuesta* simply removed all hope for a change in the law.

In the long run, of course, we must wait for the jury to come in on the *de la Cuesta* decision. But it seems obvious that the decision will have a substantial impact on the future vitality of both the thrift and real estate industries, and on the availability and affordability of housing. It is less obvious, but perhaps more crucial, that the decision will have a lasting impact on how state contract, real estate, and mortgage law will fare in the climate of federal regulation which the case seems to have initiated.

BEA COUNTY DATA FOR ILLINOIS

We now have new 1980 county data from the US Bureau of Economic Analysis for four economic series: personal income, employment, farm income, and transfer payments. Tables are available for each county, providing data on an economic series for 1975–80. Sets including *all* Illinois counties are also available for each series for 1975–80. In addition, similar tables for 1969–74 are available in each series for each county. Send $20 per set and $1 per individual page (minimum charge, $5) to Bureau of Economic and Business Research, UIUC, 428 Commerce West, 1206 S. Sixth Street, Champaign, IL 61820.

Growth in Commuter Airline Service in Illinois: The Past Decade

J. GREGORY PARRISH

Commuter airline service to selected Illinois cities has grown dramatically in the last decade, especially since the passage of the Airline Deregulation Act of 1978. While regional airline service offered by carriers, such as Ozark Airlines, has been completely withdrawn or reduced, the number of commuter airline weekday flights and seats to selected Illinois cities has increased sharply. A very big question arises for air travelers. Can the commuter airlines fill the "travel gap" created by the withdrawal of regional and trunk airline service to Illinois cities? This article will trace the growth in the number of commuter airlines as well as the number of commuter airline flights and seats provided from 1969–1982, to and from major Illinois cities.

Since the passage of the Airline Deregulation Act of 1978, there have been three types of airlines providing service to selected Illinois cities: transcontinental, regional, and commuter airlines. A transcontinental carrier offers service on long-haul routes. Currently, there are three such carriers providing service in Illinois, outside Chicago's O'Hare Field: United Airlines, Trans World Airlines, and Continental Airlines. A regional airline offers service on medium haul routes. Ozark is classified as a regional airline, and it dominated service to many Illinois cities until passage of the Deregulation Act of 1978. The third type of airline and the focus of this article is the commuter airline. Commuter airlines may be defined as those carrying 60 passengers or fewer, operating on short haul routes to major hubs such as Chicago's O'Hare Field or Lambert-St. Louis International Airport.

The selected 15 Illinois cities as shown in Table 1, were chosen on the basis of two criteria: (1) the community had enjoyed regional airline service such as Ozark, sometime during the last decade, or (2) the community had enjoyed commuter airline service throughout the past decade. Included are some Illinois cities such as Bloomington/Normal, Galesburg, and Sterling/Rock Falls that did not enjoy commuter airline service until 1977, when Britt Airways provided service.[1]

Growth of Commuter Airline Service, 1969–1977

The number of weekday commuter flights and seats are presented in Tables 1 and 2. In 1969, the total number of flights and weekday seats were 52 and 292, respectively. In 1977 the number of flights and seats had grown to 142 and 2,472, respectively. Some cities such as Marion/Herrin, Mattoon/Charleston, Mount Vernon, Moline/Rock Island/Davenport, Iowa and Peoria did not enjoy commuter airline service during this period.

Table 1

Number of Commuter Airline Flights to Selected Illinois Cities, 1969-1982 Weekday

Year	1969	1970	1971	1973	1975	1977	1978	1979	1980	1981	Aug. 1982
Selected City											
Bloomington/Normal IL	0	0	0	0	0	10	18	38	36	46	47
Carbondale IL	20	20	26	40	34	40	44	35	35	26	28
Champaign/Urbana	0	0	4	6	0	0	0	20	17	32	36
Danville	8	8	8	8	10	12	16	28	10	8	16
Decatur	0	0	6	6	0	0	0	7	29	47	38
Galesburg	0	0	0	0	0	10	28	36	24	14	22
Marion/Herrin	0	0	0	0	0	0	0	10	0	0	12
Mattoon/Charleston	0	0	0	0	0	0	0	8	24	8	8
Mount Vernon	0	0	0	0	0	0	0	0	10	16	17
Moline/Rock Island/ Davenport	0	0	0	0	0	0	0	38	28	72	99
Peoria	0	0	0	0	0	0	0	58	37	22	14
Quincy	0	0	0	0	19	28	8	38	38	43	36
Rockford	0	0	0	0	0	0	0	72	4	0	7
Springfield	24	32	21	44	26	12	12	32	53	58	51
Sterling/Rock Falls	0	0	0	0	0	20	14	24	16	4	8
Totals	52	112	65	113	89	142	212	464	361	366	439

Source: *Official Airline Guides*

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The Spectacular Growth of Commuter Service After 1978

After enactment of the Deregulation Act of 1978, commuter airlines were free of the requirement to obtain a "certificate of convenience" from the Civil Aeronautics Board. They could add service if justified by

Table 2

Number of Commuter Airline Weekday Seats to Selected Illinois Cities, 1969-1982, Number of Airline Seats Weekday

Year	1969	1970	1971	1973	1975	1977	1978	1979	1980	1981	Aug. 1982
Selected City											
Bloomington/Normal	0	0	0	0	0	60	108	494	551	775	1176
Carbondale	100	100	260	400	948	1024	1104	924	924	486	1093
Champaign/Urbana	0	0	176	108	0	0	0	260	276	846	1289
Danville	48	48	48	144	60	72	168	723	180	144	288
Decatur	0	0	108	108	0	0	0	126	370	644	1140
Galesburg	0	0	0	0	0	60	168	468	312	202	316
Marion/Herrin	0	0	0	0	0	0	0	440	0	0	156
Mattoon/Charleston	0	0	0	0	0	0	0	352	312	104	104
Mount Vernon	0	0	0	0	0	0	0	0	200	208	221
Moline/Rock Island/ Davenport	0	0	0	0	0	0	0	670	888	1822	2933
Peoria	0	0	0	0	0	0	0	1102	756	676	672
Quincy	0	0	0	0	190	560	160	708	708	575	552
Rockford	0	0	0	162	0	0	0	1512	52	0	210
Springfield IL	144	240	346	440	752	576	576	1176	1333	1489	2203
Sterling/Rock Falls	0	0	0	0	0	120	84	312	202	52	124
Totals	292	388	938	1362	2382	2472	2368	9267	7020	8023	12,477

Source: *Official Airline Guides*

market potential. The result was spectacular increases in commuter service to selected Illinois cities. The number of commuter airline flights to Illinois cities rose from *142 in 1977 to 439 in 1982* (Table 1). Even more impressive was the jump in commuter airline weekday seats from *2,472 to 12,477* (Table 2). This was the "commuter revolution." In some Illinois cities, such as Moline/Rock Island/Davenport, Iowa, the number of seats went from 0 to as high as 2,933 as shown in Table 2.

Some Illinois Cities Experience a "Travel Gap"

Despite the dramatic increase in commuter service as cited above, many cities throughout Illinois have recently lost important regional airline service by Ozark Airlines. This leaves them without access to long-haul routes. For example, in Champaign/Urbana (Table 3) the number of daily DC9 flights and seats decreased sharply between May 1981 and August 1982, to Chicago, St. Louis, Washington, and New York. The number of weekday flights and seats offered by Ozark decreased from Champaign to Chicago by six flights to 0. Although the number of seats offered by Britt Airways increased from 328 to 744, the Terre Haute based commuter airline alone could not compensate for the elimination of DC9 service to Chicago. Thus, the total number of weekday seats declined slightly from 928 to 894. On July 1982, Air Illinois introduced service to Champaign/Urbana providing an additional 150 seats to Chicago and the twin cities on weekdays.[2]

In the St. Louis/Champaign market, the withdrawal of Ozark DC9 flights has caused a drastic reduction in available airline seats. While the total number of flights decreased from 10 to 9 (Table 3), the total number of seats declined sharply from 1,000 to 639.

The most damaging cutback occurred in the Champaign/Washington and Champaign/New York service. Ozark's decision to drop the widely acclaimed nonstop service saw the number of seats dropped from 400 to 0. In the case of the Champaign/Washington/New York service, there is currently connecting daily service through St. Louis but this flight is obviously *not direct.*

The Changing Strategy of Regional Airlines: Going West to Go East

After the enactment of the Deregulation Act of 1978, the principal regional carrier in Illinois, Ozark, changed its marketing strategy. Before 1977, Ozark promised to develop mid-America air service from Illinois cities to the east coast, bypassing major hub cities of Chicago and St. Louis. This saved downstate Illinois air travelers time, money, and inconvenience. For example, at one time, Champaign/Urbana passengers enjoyed two nonstop flights daily to Washington (Dulles) and New York (La Guardia). This service no longer exists.

As of August 1982, Champaign/Urbana passengers can get to Washington on two optional flights. However, neither are direct. Flights start at Champaign/Urbana but go west 70 miles to Peoria, then 245 miles southwest to St. Louis and then 715 miles back east to get to Washington (National). A total of 1,030 miles. This new "west-to-go-east" flight increases total time from 1 hour and 20 minutes to 2 hours and 20 minutes, plus another hour or so connecting time, and increases the total mileage from 780 miles to 1,030.

Champaign/Urbana along with Decatur, Springfield, and Peoria, are no longer direct Washington/New York access cities. They have been reduced to feeder cities for Ozark's St. Louis hub. There are at this writing, no Ozark flights to the other hub (Chicago, O'Hare) from these cities. On 1 August 1982 Ozark dropped all service to Decatur.

The rationale for this major and very abrupt change by Ozark is that the equipment formerly used in the direct flights can now be more profitably used on long haul flights as St. Louis to Dallas and Houston, Texas and St. Louis to Orlando, Miami and Tampa, Florida and Norfolk, Virginia.

From the above analysis, it is clear that Ozark's

Table 3

Number of Daily Flights and Seats, Champaign/Urbana to Chicago, St. Louis, Washington and New York; May 1981 and August 1982

	Number of Flights		Number of Seats	
	May 1981	Aug. 1982	May 1981	Aug. 1982
Champaign/Urbana				
To Chicago				
Air Illinois	0	2	0	150
Britt	16	18	328	744
Ozark	6	0	600	0
Totals	22	20	928	894
Champaign/Urbana				
To St. Louis				
Britt	0	3[a]	0	39[a]
Ozark	10	6	1000	600
Totals	10	9[a]	1000	639[a]
Champaign/Urbana				
To Washington[b]				
Ozark	4	0	400	0
Champaign/Urbana				
To New York[b]				
Ozark	4	0	400	0

[a] Britt Airways has been ordered by the FAA to reduce the number of flights.
[b] As of August 1, 1982 through service available out of St. Louis, not direct. Non-stop service discontinued October 29, 1981

Source: *Official Airline Guides*

schedule changes have seriously altered air travel options for downstate Illinois travelers. Many business leaders and University of Illinois faculty who once used the direct flights are very much concerned. Charles Eckert, Head of the University of Illinois' Department of Chemical Engineering, summed up the situation: "Ozark's pullout will not only have an effect on high tech companies that consider locating in the area, but will hurt University efforts to hire quality faculty members."[3]

The Price of Air Travel: 1976–1982

The recent introduction of commuter airline service to many downstate Illinois cities by Air Illinois, Britt Airways, and Mississippi Valley Airlines has led to competitive pricing. Many routes from Illinois cities to St. Louis and Chicago are now served by more than one commuter airline. For example, the recent introduction of service between Champaign/Urbana and Chicago by Air Illinois brought competition to this market, formerly dominated by Britt Airways after the withdrawal of Ozark's service in 1981.

As of this writing Britt Airways currently charges $98 for a round-trip fare between Champaign/Urbana and Chicago; Air Illinois also charges $98. A special Britt Air shuttle fare with a 24-hour time limitation, was recently introduced for $64. This promotional fare was not offered by Britt Airways before the introduction of service to the twin cities by Air Illinois. On 1 August 1982 other routes between Chicago and downstate Illinois cities also were competitive in pricing: Chicago and Springfield (Britt Airways and Air Illinois), Chicago and Decatur (Britt Airways and Air Illinois) and Chicago to Moline/Rock Island/Davenport, Iowa (Mississippi Valley and Britt).

Competition has also emerged between St. Louis and various Illinois cities. The round-trip fare between Champaign/Urbana and St. Louis on Ozark's DC9 jets currently is $182, while passage on Britt Airways (Beechcraft Turboprop) currently is $134. This represents, for the first time, competition between regional and commuter airline fares. The more expensive ride on Ozark's DC9 jet includes such amenities as "above-the-weather" comfort, beverages, restrooms, and 500-mile-an-hour air speeds. Other markets with fare competition among commuter air carriers include Decatur and St. Louis (Britt Airways and Air Illinois) and Springfield and St. Louis (Britt Airways and Air Illinois).

Competition Among Joint Fares: 1976–1982

A look at the air service between Illinois cities and Washington and New York reveal drastic change in service and fares since 1976. Table 4 shows all the different types of connections and fare levels between Champaign/Urbana and Washington, DC. For example, a passenger traveling round-trip on Ozark with a connection in St. Louis would be charged $404. An excursion fare is also available with some restrictions for $340. Persons wishing to travel Ozark or Britt Airways to St. Louis and then make connections with US Air or TWA would pay $414.

Joint fares are also competitive in the Champaign/Urbana, Chicago/Washington, DC service. A passenger traveling Air Illinois or Britt Airways to Chicago connecting with American, TWA, United, Northwest or Piedmont Airlines, would pay $404 for a round-trip standard coach ticket. Persons traveling to Chicago on Britt Airways or Air Illinois and transferring from O'Hare to Midway Airport to complete their trip to Washington on Midway Airlines would pay $316 and $354, respectively, for a round-trip ticket. Thus, in today's ever-changing deregulation environment, there is increasing competition among commuters on short haul trips and joint fares on long haul journeys connecting to regional and trunk carriers.

Summary and Conclusions

Commuter airline service in Illinois cities experienced revolutionary expansion since 1976. The number of commuter flights increased from 212 to 439, while the number of commuter airline seats increased from 2,368 to 12,477.

At the same time, Ozark Airlines began withdrawing DC9 flights in 1981 from many routes serving Illinois cities such as Champaign/Urbana to Washington and New York and Champaign/Urbana to Chicago.

Will the commuter airlines such as Britt Airways, Air Illinois, Mississippi Valley, and others be able to fill the "travel gap" created by the reduction in service by regional airlines such as Ozark? In general, they have done so. However, there is the problem of the quality of air travel. Ozark's DC9 service offered "above-the-weather" comfort, beverage and snack service, and 500-mile-per-hour aircraft. In general, the commuters have not yet duplicated this quality of service in the type of equipment used at present.

Table 4

Optional Carriers and Fares, Champaign/Urbana to Washington, D. C. Via St. Louis and Chicago

Champaign/Urbana to Washington Via St. Louis	Round-trip Coach Fare
Ozark (DC9) to St. Louis Ozark (DC9) to Washington	
Regular Fare	$414
Excursion[a]	$340
Ozark (DC9) to St. Louis Trans World (727) or US Air (DC9) to Washington	
Regular Fare	$414
Britt (Beechcraft Turboprop) to St. Louis Trans World (727) or US Air (DC9) to Washington	
Regular Fare	$414
Ozark (DC9) to St. Louis Midway Airlines (DC9) to Washington	
Regular Fare	$480
Britt (Beechcraft Turboprop) to St. Louis Midway Airlines (DC) to Washington	
Regular Fare	$432
Champaign/Urbana to Washington Via Chicago	
Britt (FH-227 Turboprop) to Chicago American, Trans World, United, Northwest, Piedmont Airlines (727's) To Washington Regular Fare	$404
Air Illinois (British Aerospace 111) to Washington American, Trans World, United, Northwest, Piedmont Airlines (727's) to Washington Regular Fare	$404
Britt (FH-227 Turboprop) to Chicago Midway Airlines to Washington[b] Regular Fare	$316
Air Illinois (British Aerospace 111) to Chicago Midway Airlines to Washington[b] Regular Fare	$354

[a] Seat restrictions and limitations on length of trip
[b] Change Airports-Chicago O'Hare to Chicago's Midway Airport

The Author is indebted to Doddson Travel Agency and Mid America Travel Agency, Champaign, IL, for fare quotations.

A new development is the emergence of competition among commuter airlines. Also, recently competition has emerged among carriers between commuter and regional airlines on short- and long-haul routes such as Champaign/Urbana to Chicago, St. Louis, Washington, and New York.

The growth of commuter air service has been increasing rapidly at a time when air fares have been rising sharply. In 1976, a round-trip ticket on Ozark between Champaign/Urbana and St. Louis was $78; in 1982 the round-trip fare had risen to $182, a 133 percent increase. Likewise in 1976 the round-trip air fare was $158 between Champaign/Urbana and Washington, DC; in 1982 the round-trip fare had climbed to $404, a 155 percent increase.

There are some challenges which the commuter airlines should meet during the 1980s: (1) the availability of gate access at major hubs such as Chicago and St. Louis, (2) ability to provide the new generation of commuter aircraft with larger capacity and faster short-haul service, and (3) ability of commuter planes to "fly above the weather" and provide inflight service, which for the most part, cannot now be provided.

Notes

1. For a discussion of the regional and trunk airline service, see J. Gregory Parrish, "Airline Service in Illinois, 1967–1980," *Illinois Business Review,* July 1981, pp. 8–10.

2. "Airline Deregulation Grounds Area Services," *The Champaign-Urbana News Gazette,* 20 June 1982, p. 3.

3. "Ozark Pullout Impact Concerns Business, UI," *The Champaign-Urbana News Gazette,* 16 October 1981, pp. 10–11.

Indexed Bonds

K. C. CHEN

The recent substantial but uncertain inflation in the US and some other countries has renewed a great deal of interest among many economists in indexation. The failure of long-term interest to come down, even in the face of a severe recession, is causing both federal government interest costs and the federal deficit to escalate. High interest rates have long since driven corporate borrowers from the long-term bond market, and the highly publicized collapse of Drysdale Government Securities has caused nervous bond traders to be on edge. Bond prices have skidded to yearly lows. In order to entice investors back to the lackluster bond markets, many economists strongly advocate the introduction of bonds linked to the general price level or to some commodity such as gold, which are devised to protect the public against the "inflation tax."

Characteristics of Indexation

When a bond is indexed, the coupons and the principal are tied to an inflation index such as the consumer price index (CPI) or the value of the underlying commodity, such as gold. The contractual claims of bonds rise when the inflation rate or the gold price rises, thus protecting the bond holders against inflation. When a bond is not indexed in a highly inflationary period, inflation erodes the value of the principal because investors will be paid back in dollars that are worth less. The higher inflation rate also drives up the nominal interest rate, according to the famous Fisher effect. The value of the bond declines further since bond price moves inversely with interest rate. Hence, investors suffer not only purchasing-power loss but paper capital loss.

Several types of indexation can be used. A bond can be linked to (1) a general price level such as the CPI or the GNP deflator; (2) a single commodity's price such as gold, silver, or oil; (3) a product manufactured or serviced by the issuer such as the price per kilowatt hour for a utility firm; (4) sales volume in monetary units; and (5) financial performance of the issuing company, such as earnings.*

Indexed bonds have been intensively used in Finland, Israel, Brazil, and a few other countries long plagued by inflation. The Mexican government has issued bonds indexed to the price of oil to finance the development of its huge petroleum reserves; but indexed bonds have not been tried in the US since 1925, despite frequent discussions and the recommendations of many eminent economists.

Retrospective History

The use of linked value for investments is not a recent innovation. Purchasing-power clauses in debt contracts can be traced back at least to the 18th century in the US: the Massachusetts "equity bills" of 1742 and Depression Notes of 1782 were both based on the index principle. In 1925, the Rand Kardex Company issued 30-year bonds with interest and principal tied to the wholesale price index. By no coincidence, Irving Fisher, a pioneer in purchasing-power guarantees, was associated with the company when the bonds were issued. Unfortunately, the bond was a failure. Fisher attributed the failure to the unfamiliarity of the market with the new asset. Since then, the absence of linked issues in the very well-developed US capital markets is something of a mystery. Finally in April 1980 Sunshine Mining Company issued a $25 million issue of silver-indexed bonds. The company promised to pay the bond holders at maturity date (in 1995) either the $1,000 face value or the market value of 50 ounces of silver, whichever is greater. This is the first such move by a private firm in over 55 years. According to the investment banker of that issue, about a dozen interested companies might follow up in the future.

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Pros and Cons

The absence of linked issues during the period 1925–1980 probably can be attributed to the relative stability of the inflation rates in the US during the two decades following World War II, as well as an understandable conservative bias against drastic innovations in the financial markets. The biggest barrier, however, to issuing indexed bonds by corporations arises from the fear of the tax treatment of inflation-linked interest payments essentially as dividends. Although the Internal Revenue Service has not issued a ruling, it has indicated that this would be the case. Some people even see indexing as a victory for inflation, especially if the government should issue indexed bonds, which would signal to the public a government surrender to inflation.

Nevertheless, indexed bonds do have some merits. Issuance of an indexed bond would provide portfolio holders with an asset which guards against a risk which cannot be fully hedged. From the prospect of portfolio selection theory, the introduction of indexed bonds also could eliminate certain types of monetary risks for both debtors and creditors. This investment medium would be particularly desirable on distributional grounds, since it could enable consumers to provide themselves with an assured standard of living for their retirements.

What should the issuer index its bonds to? It is not an easy task to pick an appropriate single index. No single index is a consensus in the sense that it all depends on the issuer's belief regarding the anticipated future trends and volatilities of the general price level, commodity price, or even sales volume. The Sunshine Mining Company indexed its bonds to silver. The Mexican government issued bonds indexed to the price of oil. The Electricité de France indexed its bonds to the price per kilowatt hour. In Congress, Representative James K. Coyne (R.-PA) is working for passage of the Long Term Savings Restoration Act, which would authorize the Treasury to issue securities indexed to the GNP deflator. In all instances, a portfolio of those bonds linked to different commodities, might confer a reasonable degree of protection against general inflation. Individual investors can also benefit by tailoring a portfolio that approximately matches their own consumption bundle.

But indexing is not without risk. If a company indexes its bonds to the CPI, for instance, it is betting that the prices of its own products will rise as fast as prices on average. If their own prices fail to keep pace, their indexed liabilities will grow faster than their profits. If the price of a commodity to which the bonds are indexed crashes due to uncontrollable circumstances, it will be highly questionable whether this issue can spark much demand.

In the presence of the stubbornly high level of long-term rates and of the Treasury's huge needs to borrow

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in coming months to cover the federal government's massive budget deficit, the public is pessimistic about the possibility that the Federal Reserve System might be forced to tighten its grip on credit. The depressed bond markets already reflect investors' lack of enthusiasm. Hence, indexing seems to be one of the many feasible solutions which would lure investors back to the long-term bond market. As long as the uncertainty of the tax issues can be cleared up and the Coyne bill can be passed, indexing will take off faster than we might expect.

Note

* If bonds are indexed to earnings, they should probably be called participating bonds rather than indexed bonds.

Illinois Business Index

	July 1982	June 1982	May 1982	April 1982	July 1981
Coincident indicator (1969=100)	101.2	104.88	113.96	113.53	127.0
Manufacturing employment (thousands)	1014.2	1032.4	1039.2	1047.0	1184.3
Average weekly hours-manufacturing	39.0	39.2	39.2	38.8	39.7
Weekly earnings-manufacturing	$361.14	362.60	365.34	359.68	359.68
Help-wanted advertising-Chicago (1967=100)[a]	40	45	[illegible]	44	68
Help-wanted advertising-St. Louis (1967=100)[a]	35	37	40	38	50
Ordinary Life insurance sales (millions)	$1,995	2,238	1,998	2,138	1,806
Retail sales (millions)[b]	$4,406	$4,471	$4,536	$4,393	$4,201
Coal production (thousands)	4,318	5,094	5,285	5,607	4,388
Petroleum production (thousands)	2,450	2,040	2,103	2,138	2,096
Vendor performance (seasonally adjusted; percent)	41.8	37.7	29.2	28.5	46.7
Building permits (in thousands)					
Residential housing units	1.74	1.24	1.95	1.11	1.32
Value of residential housing	$77,726	61,722	94,081	55,233	63,576
Value of non-residential construction					
Industrial buildings	$12,296	20,989	13,907	34,439	115,619
Office, Banks, and professional buildings	$28,758	33,278	36,592	31,175	40,309
Stores and other Mercantile buildings	$15,003	11,714	61,787	10,802	11,661
Other	$96,426	$94,816[e]	$25,300	$32,653	$40,710
Consumer price index					
North Central U.S.[d]	-	157.6	-	154.1	146.9[c]
North Central/population greater than 1,250,000[d]	-	159.6	-	155.2	150.0[c]
North Central/population 385,000 - 1,250,000[d]	-	155.3	-	155.1	146.6[c]
North Central/population 75,000 - 385,000[d]	-	155.2	-	151.2	142.3[c]
North Central/population less than 75,000[d]	-	156.4	-	153.3	143.1[c]
Chicago (1967=100)	293.1	291.8	287.7	280.2	272.7
St. Louis (1967=100)	290.2	-	285.7	-	269.4
Prices received by farmers (1976-80=100)	115	117	116	113	131
	1982I	1981IV	1981III	1981II	1981I
Personal income (millions)	$135,286	$135,139	.$133,616	$129,613	$127,892

[a] The Conference Board, *Help Wanted Advertising*, August, 1982

[b] Most recent month projected by BEBR

[c] June, 1981

[d] December, 1977=100

[e] Definition changed to include a broader category of other non-residential construction

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Money-Supply Terminology Explained

LARRY WHITE

On 6 October 1979, the Board of Governors of the Federal Reserve changed its basic operating strategy from one that focused on the federal funds rate to one that focuses on reserve aggregates. In other words, the Federal Reserve shifted from an operating strategy that worked through short-term interest rate control to one that attempts direct control over the money supply. This shift in emphasis highlights the importance of specific definitions of money.

To some, "money" is no more than the pictures of George Washington and Abraham Lincoln that are carried in billfolds and purses across the country. To some macroeconomists defining their models, money becomes that generic asset that yields no nominal rate of interest. While both concepts are a part of what money is, neither encompasses the full spectrum of "money."

Presently, the Federal Reserve Board delineates four specific measures of the money stock, entitled M1, M2, M3, and L. M1 consists of currency outside the Treasury, Federal Reserve Banks, and commercial banks. It also includes traveler's checks of nonbank issuers, checking accounts of all commercial banks (other than those due to domestic banks, the United States government, and foreign banks and official institutions), less cash items in the process of collection and Federal Reserve float. For the most part, these items had been included in the old definition of M1. The current definition of M1 also includes negotiable orders of withdrawal (NOW) and automatic transfer service (ATS) accounts at banks and thrift institutions, credit union share draft (CUSD) accounts, and demand deposits at mutual savings banks.

M2 contains M1 plus savings and small (less than $100,000) denomination time deposits at all depository institutions, overnight repurchase agreements (RP's) at commercial banks, overnight Eurodollars held by US residents other than banks at Caribbean branches of member banks, and balances of money market mutual funds (general purpose and broker/dealer).

M3 is M2 plus large (greater than $100,000) denomination time deposits at all depository institutions, term RPs at commercial banks and savings and loan associations, and balances of institution-only money market funds.

L is the broadest measure. It includes M3, plus other liquid assets such as term Eurodollars held by residents other than banks, bankers acceptances, commercial paper, Treasury bills, and other liquid Treasury securities, and US savings bonds. These measures have been developed over the past years, due to the changing economic and legal conditions in the US.

Since 1971, the Federal Reserve Board definitions have attempted to keep pace with legal and economic changes to provide an accurate account of the stock of money. In defining money, the Federal Reserve has attempted to draw lines between those forms that are liquid for transaction purposes and those that are not. Certain accounts have experienced changing degrees of liquidity, hence triggering redefinitions of the money stock. The Federal Reserve is also looking to group accounts that can provide some predictability for our economy. A final motivation in drawing arbitrary lines concerns data availability. Data availability is important with respect to consistency of measure over time. With these basic criteria, various definitions have emerged in the past few years.

Before April 1971, only one method was used to measure the money stock in the US, as reported in the *Federal Reserve Bulletin*. The three components included

Community Attitudes Toward Industry *By John R. McGregor* / *Page 3*

Property Values as Guide to Setting Local Public Expenditure
By Jan K. Brueckner / *Page 6*

How Housing Starts Are Estimated *By Karen Mokate* / *Page 8*

in this measure were outstanding coin and currency, demand deposits at commercial banks, and foreign demand balances at Federal Reserve Banks. However, in April 1971 the Federal Reserve moved from one measure to three, in hopes of providing more meaningful measures of liquidity. What was previously defined as the money stock became known as M1. The second measure was called M2, and included M1, time and savings deposits at commercial banks, and small nonnegotiable certificates of deposit. The other new measure was termed M3, and included M2, plus savings deposits at mutual savings banks, savings and loan associations, and credit unions. In April 1975, the Federal Reserve added M4 and M5. M4 was M2 plus large negotiable certificates of deposits, while M4 was M3 plus these large negotiable certificates of deposit. These were the basic standards until 1980.

There were changes between 1975 and 1980, both legal and economic, that affected the measures of the money stock. In 1972 Massachusetts and New Hampshire mutual savings banks began offering negotiable order of withdrawal (NOW) accounts to their customers. By 1976 these accounts were extended to savings and loan associations and commercial banks throughout New England. These NOW accounts provided checking privileges and also returned a rate of interest like a savings account. Despite the fact that checks were written on these accounts, they were not counted as part of M1. On 1 November 1978, automatic transfer from savings (ATS) accounts were legalized for natural individuals (not corporations) and sole proprietorship businesses. This change allowed part of a savings account to be used as if it were a checking account, and yet continue to earn interest. These were also excluded from M1. As inflation began to rise in the US, an incentive appeared for bank customers to become more efficient in managing their money, taking better advantage of these and other services offered by banks, savings and loan associations, and credit unions. In January 1979, the Federal Reserve responded somewhat to these changes by adding another measure of the money stock, termed M1+. This new measure consisted of M1 plus savings at commercial banks, NOW accounts at all depository institutions, credit union share draft accounts, and demand deposits at savings banks. This additional measure more accurately reflected those accounts that were liquid for transactions.

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In 1980 more changes took place. The Depository Institution Deregulation and Monetary Control Act of 1980 opened the door for NOW accounts outside New England. This sweeping change, along with the better money management blurred the line of liquidity. Two questions arose: What type of account made checking possible; and which type was actually used as a checking account. On 7 February 1980 the Federal Reserve Board once again responded to the changes that had taken place. The change this time was more drastic, and approached current measures. The new measures were known as M1-A, M1-B, M2, M3, and L. They resembled the old measures, but nonetheless provided improved methods to measure the money stock. M1-A was similar to the old M1, in that it included outstanding coins and currency and demand deposits at commercial banks. However, M1-A excluded demand deposits by foreign banks and official institutions. M1-B was similar to M1+, and consisted of M1-A and other checkable deposits at all depository institutions, including NOW accounts, credit union share drafts, and demand deposits at mutual savings banks. M2 included M1-B, savings deposits and small time deposits at all depository institutions, overnight repurchase agreements at commercial banks, overnight Eurodollars held by US residents, other than banks, at Caribbean branches of member banks, and money market mutual fund shares. M3 consisted of M2, plus large denomination time deposits at all depository institutions, and term repurchase agreements at commercial banks and savings and loan associations. L was an even more general description, and has not been altered since 1980. It was also understood that M1-A would be phased out and that M1-B would become simply M1. This took place in January 1982, along with minor changes in M2 and M3 that have brought the measures of the money supply up to date.

The motivations behind this revision were clear. The degree to which many accounts were liquid for transactions purposes had changed. The general idea for drawing the line had not changed, but some accounts had crossed the lines. Foreign bank deposits were removed from M1-A, and hence the other measures, because it was believed that these balances were used mainly for check-clearing procedures, and not for the actual purchase of goods and services. M1-B was defined so as to include all checkable accounts, much like old M1. Money market mutual fund shares could be used as checking accounts, but the high minimum balance required on most of them often precluded their use in this manner. Hence, these accounts were added to M2 and not M1-B. Also, there was still a need to count savings accounts in M2, because not all savings accounts became NOW accounts. Overnight RP's and Eurodollars also became close substitutes for time deposits for those customers with the desire to use them, and thus became part of M2.

It turns out that, at length, the term "money" continues to be ambiguous. Although everyone knows generally what money is, everyone does not necessarily know all the specific ways the term is used. When there are reports that the money supply has increased or decreased, even one who thinks he knows what has happened may be confused. Recent laws have blurred the picture even more. A perfect measure of the money supply has yet to be found, and changing laws dictate changing definitions, if we are to keep the definitions meaningful. The Federal Reserve has changed with the times and will continue to do so in pursuit of adequate and accurate measures of the stock of money.

Community Attitudes Toward Industry in Champaign-Urbana

JOHN R. McGREGOR

The successful location of an industrial establishment in a community can be viewed realistically as a matching process. Not only must the needs of the establishment for competitive costs and market access be served, but the needs of the community must also be protected. Certainly, the attraction of new establishments to an area should not result in deterioration of the economic, cultural, political, and environmental conditions in the community.

Individual attitudes toward specific industrial impacts vary widely. Further, given that differences exist among communities, composite local attitudes toward industry may also be assumed to vary. What may be broadly acceptable in one community may stimulate hostility and resistance if introduced into another. An unwanted establishment may quickly face tax, zoning, building code, urban service, and labor-supply problems as its local impacts are progressively felt.

Allusions to the importance of local attitudes are scattered through the literature on industrial development, and reference is occasionally made to consideration of such attitudes as a factor in plant-location efforts. However, only two recent studies have dealt directly with the issue of local attitudes in industrial development. In the first, which appeared in *The Geographical Bulletin* (Vol. 4, 1972, pp. 216–23), Raymond Hubbard assessed student attitudes toward industrial development in Nebraska. The second, which was published in *Growth and Change* (Vol. 7, 1976, pp. 28–33), analyzed attitudes toward industrial development in "a West Texas community." In it Grady D. Bruce and Robert P. Green defined community-industry preferences, development policy preferences, and acceptability of new industry. Since there was so little available prior research, the Champaign-Urbana case study was undertaken to provide an expanded perspective on the nature of community-wide attitudes toward industry.

The Analysis

It was felt that three basic questions should be posed in an analysis of community attitudes toward industry. First, does the community want new industry? Second, how would the community evaluate various types of possible industrial impacts? And, third, what does the term industry mean to the community? A questionnaire was developed to resolve these questions, and responses were obtained from a random sample of 384 Champaign-Urbana residents during July and August of 1980. The sample is sufficient to generate statistically valid results.

The residence sample was developed by random selection from the telephone directory. For each individual selection, the directory page number and then the specific listing on the page were identified using a table of random numbers. A mailing of 750 questionnaires generated 202 completed responses. Direct interviews provided results from another 182 individuals. Where respondents were not at home at a selected residence, the one "to the right" was selected. For example, in dealing with single-family homes, the next house to the right (facing the sample house from the street) on the block would be selected.

Would You Like to See New Industry Developed in Champaign-Urbana?

Respondents were asked to provide a yes-or-no reaction to the prospect of new industrial development in the community. In response, 294 of 384 respondents (76.6 percent) answered yes. This would seem to indicate only a moderately favorable level of support for new local industrial development when the results from comparable studies are considered. In the "West Texas community" study, 86 percent of the general public supported new industry, and in a 1980 survey of Terre Haute, Indiana, developed concurrently with this analysis, the support level was found to be 94 percent.

How Do You Evaluate Industrial Impacts?

On the questionnaires, respondents were asked to rate each of 40 possible industrial impacts on a five-point scale ranging from very good to very bad. Economic, cultural, political, and environmental classes were indicated, with 10 possible kinds of impact listed under each class.

The ratings were tallied for each impact and then converted into scores. Very good ratings were scored 5; good, 4; average, 3; bad, 2; and very bad, 1. The mean score for each kind of impact was then calculated and the impacts rank ordered (Table 1) in terms of their means. Graphing of the mean scores suggested boundaries between groups of impacts would be appropriate at mean scores of 3.7 and 2.8.

The mean scores in the highest group ranged from 3.750 to 4.422. Relating largely (1) to the economic and cultural impacts of industrial employment and (2) to

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Table 1

Evaluation of Possible Industrial Impacts

Rank	Possible Impact (Class)[a]	Mean Score
1	Provides New Employment (Ec)	4.422
2	Reduces Unemployment (C)	4.393
3	Provides Jobs for Local People (C)	4.289
4	Results in Improved Local Schools (C)	4.106
5	Generates New Construction (Ec)	4.096
6	Stimulates Other Area Business (Ec)	4.094
7	Results in Increased Cultural Activities (C)	4.018
8	Adds to Area Professional Population (C)	4.003
9	Adds to Local Tax Base (Ec)	3.992
10	Provides Minority Job Opportunities	3.938
11	Provides About Average Wage (Ec)	3.930
12	Attracts New People to Area (C)	3.888
13	Interlinks With Other Area Industry (Ec)	3.750
14	Attracts Still More Industry to Area (Ec)	3.513
15	Increases Area Land Values (Ec)	3.443
16	Creates Job Security Through Unions (C)	3.354
17	Increases Rail Traffic (En)	3.307
18	Adds to Labor Vote in City (P)	3.302
19	Adds to Demand for Urban Services (P)	3.234
20	Stimulates Urban Growth (Ec)	3.227
21	Generates Urban Growth (C)	3.201
22	Adds to Union Strength in Area (P)	3.052
23	Results in Annexation of Outlying Areas (P)	3.037
24	Requires Community Financed Development Efforts (P)	3.000
25	Requires Modification of Building Codes (P)	2.966
26	Requires Tax Concessions to Come to Area (P)	2.893
27-28	Influences Local Political Decisions (P)	2.875
	Requires Zoning Changes (P)	2.875
29	Increases Local Housing Costs (Ec)	2.623
30	Restricts Use of Adjoining Land (P)	2.596
31	Increases Stress in Community Life (C)	2.589
32	Occupies Scarce Land (En)	2.341
33	Increases Traffic Congestion (En)	2.268
34	Increases Urban Noise (En)	2.188
35	Creates Unattractive Areas (En)	2.023
36	Involves Hazardous Processes (En)	1.987
37	Generates Dust (En)	1.928
38	Generates Odors (En)	1.922
39	Generates Water Pollution (En)	1.841
40	Generates Air Pollution (En)	1.810

[a] (C) Cultural, (Ec) Economic, (P) Political, (En) Environmental

impacts resulting in area growth, the group impacts are viewed as potentially favorable in Champaign-Urbana. Clearly, area employment and growth resulting from new industry would be well received locally.

The middle group of potential impacts had mean scores ranging from 2.875 to 3.513. Nine of the 15 impacts in this group were political, and their means ranged from 3.234 to 2.875. Thus, 9 of the 10 political impacts of local industrial development identified would generate only moderate reactions from Champaign-Urbana residents. Their means ranged from 2.875 (slightly negative) to 3.302 (slightly positive). The other middle-group impacts, involving urban and industrial growth, increased land values and rail traffic, and union job security, were viewed as moderately positive impacts (somewhat above 3.0).

The impact means in the lowest group ranged from 2.623 to 1.810. Although the means exhibited a considerable range, the group impacts were clearly viewed as those which would contribute to a deterioration of the quality of life in the area. Those with the highest ratings in the group involved increased housing costs, land-use restrictions, and increased stress in community life. The others were environmental impacts, ranging from occupation of scarce land to air pollution. While the negative impact of each is clearly understood by the area population, variation in the degree of opposition to the different environmental impacts is also obvious. While some land consumption, traffic increase, and additional urban noise might well be tolerated, significant new dust and odor problems or air and water pollution would be very likely to generate significant local opposition.

What Does the Term Industry Mean to You?

Questionnaire respondents were asked to indicate the meaning to them of "industry," and 84 percent (323 of 384) did so. The responses ranged in length from a single word or two to three sentences. In analyzing the answers, we considered each expressed concept a response, and a single respondent could be credited with several "answers." Thus, "jobs in a manufacturing plant" would be considered recognition of (1) employment, (2) the manufacturing process, and (3) the physical facility. The results are summarized in Table 2.

The dominant single characterization (52.2 percent) was that industry is an activity and, more specifically, a manufacturing activity. That it also takes place within facilities, primarily factories, and involves distinctive corporate and union organization was specified in far fewer responses.

Positive industrial impacts were indicated in 18.0 percent of the responses, and these predominantly involved new employment and community economic growth. Negative impacts were specified in 11.1 percent of the responses and were largely those relating to the environment.

To the residents of Champaign-Urbana the term industry primarily suggests a manufacturing activity. The employment and economic-growth benefits of industrial growth were recognized by far fewer respondents. Further, the negative industrial impacts of industrialization were identified by only a slightly smaller number of respondents than its positive impacts. It would seem that most area respondents do not view the prospect of new

Table 2

Aspects of Industry Recognized by Champaign-Urbana Respondents

Aspect	Number of Responses		Percent
Positive Impacts		121	18.0
Employment	74		
Community Economic Growth	32		
Community Improvement	9		
Other	6		
Activity		352	52.2
Manufacturing	252		
Business, Commerce, etc.	49		
Provision of Services	23		
Research	10		
Other	18		
Facilities		93	13.8
Factory	69		
Other	24		
Organization		33	4.9
Corporation	29		
Unions	4		
Negative Impacts		75	11.1
Environmental	61		
Other	14		
Total		674	100.0

area industry as a matter of direct benefit to themselves, but rather as simply another area of economic activity.

Conclusions

From the present analysis, the residents of Champaign-Urbana, Illinois appear to be moderately receptive to the prospect of new industry locating in their community. With 76 percent of the population supporting industrial growth and with a variety of potential economic and cultural impacts rated very highly (Table 1), there would seem to be a potential for local industrial development.

There are, however, clear constraints. First, the possible environmental impacts are rated very negatively. Any development which would result in environmental deterioration would probably generate intense local opposition. The communities are now largely free of environmental problems, and the residents understandably wish to maintain the present environmental quality.

Second, the perception that industry is simply another economic activity seems to dominate the local perception of industry. If industry is to be successfully located in the two communties, the potential benefits of development need to be established. In 1979, only about 18 percent of the business employment in Champaign-Urbana was in manufacturing. Given the area's large additional nonbusiness employment in education and government, it is not surprising that many area residents see the possible benefits of local industrial development in abstract terms rather than as direct benefits to themselves. Such persons require convincing that local industrial development will be controlled, that the impacts of new development would be beneficial rather than detrimental to the total community environment.

ILLINOIS BUSINESS INDEXES

	September 1982	August 1982	July 1982	June 1982	September 1981
Coincident indicator (1969=100)	98.13	99.25	101.2	104.88	125.1
Employment-manufacturing (in thousands)	1004.3	1009.1	1014.2	1032.4	1188.7
Average weekly hours-manufacturing	39.2	39.5	39.0	39.2	39.9
Weekly earnings-manufacturing	\$370.83	\$371.70	\$361.14	\$362.60	\$365.09
Help wanted advertising-Chicago (1967=100)[a]	38	41	45	45	61
Help wanted advertising-St. Louis (1967=100)[a]	N/A	35	37	40	52
Ordinary life insurance sales (in millions)[b]	\$2,106	\$2,052	\$1,995	\$2,238	\$1,780
Retail sales (in millions)[b]	\$4,323	\$4,413	\$4,406	\$4,471	\$4,186.50
Coal production (in thousands)	5,587	5,745	4,318	5,094	5,587
Petroleum production (in thousands)	2,445	2,530	2,450	2,040	1,980
Vendor performance, seasonally adjusted (percent)	46.8	42.3	41.8	37.7	44.7
Building permits (in thousands)					
Residential housing units	3.24	1.37	1.74	1.24	.97
Value of residential housing	\$111,131	\$63,456	\$77,726	\$61,722	\$47,537
Value of nonresidential construction					
Industrial buildings	\$11,610	\$20,573	\$12,290	\$20,989	\$19,027
Office, banks and professional buildings	\$19,916	\$33,687	\$28,758	\$33,278	\$57,174
Stores and other mercantile buildings	\$11,035	\$10,511	\$15,003	\$11,714	\$11,491
Other	\$19,785	\$27,959	\$22,862	\$27,565	\$22,436
Consumer price index					
North Central US	-	160.5	-	157.6	149.8[d]
North Central/population more than 1,250,000[c]	-	162.2	-	159.6	152.6[d]
North Central/population 385,000 to 1,250,000[c]	-	157.0	-	155.3	148.8[d]
North Central/population 75,000 to 385,000[c]	-	158.9	-	155.2	145.9[d]
North Central/population less than 75,000[c]	-	160.2	-	156.4	146.7[d]
Chicago (1967=100)	294.0	293.2	293.1	291.8	276.9
St. Louis (1967=100)	294.1	-	290.2	-	273.4
Prices received by farmers	105	110	115	117	117.0
	1982:II	1982:I	1981:IV	1981:III	1981:II
Personal income (in millions)	\$138,355	\$135,286	\$135,139	\$133,616	129,613

[a] The Conference Board, Help Wanted Advertising, October, 1982

[b] Projected by BEBR

[c] December, 1977=100

[d] October, 1981

Real Estate Developments

A Special Alert from the Director of the Office of Real Estate Research

The following article on property value maximization by Jan Brueckner is one of the results of research sponsored by the Office of Real Estate Research. I believe Brueckner's work provides a major contribution to our understanding of how local public officials can set the level of public services so as to best serve the public interest. In the process, it raises the discussion of the impact of government policy on property values above the level of "profiteering" to a higher level of discussion about the public interest.

Brueckner demonstrates with well-received economic theory that a government program — financed by the property tax — resulting in increased property values must be in the public interest. He further demonstrates that a program that diminishes property values must be a program with benefits not worth the cost, and, thus, that it is not in the public interest. Surely, this finding merits especial notice by local government officials. It also merits the attention of those in the real estate industry and business community at large who are constantly told that their concern for the impact of government programs on property values reflects nothing more than avarice.

A. James Heins

Property Value Maximization: A Socially Optimal Rule for Setting Local Public Expenditure

JAN K. BRUECKNER

The relationship between property values and local public expenditure has recently become a subject of interest to economists. The resulting research has greatly improved our understanding of how local government activity affects the housing market. While the efforts of most economists have been limited to describing the impact of the local public sector, my own research has shown that the relationship between property values and local public spending can actually help local governments choose the socially "correct" level of public spending. Specifically, my research has established that if a local government chooses its public spending level so that the total value of property in the community is as high as possible, the result will be a level of public services which is socially optimal in the sense that the costs incurred are justified by the benefits received.

The purpose of the present article is to provide a nontechnical discussion of the "property-value-maximization" rule as a device for setting local public spending levels. The discussion is meant to be accessible to the intelligent layman, and it is hoped that the ideas conveyed may be of some value to local government officials.

Optimal Public Spending

The basic principle underlying the economist's determination of the socially optimal level of production for any commodity is a simple one. Basically, an extra unit of a commodity should be produced (and consumed) as long as the dollar value of the benefit generated by consumption of the extra unit is at least as large as the cost of producing it. Since higher production is warranted as long as this relationship holds, it follows that the socially optimal level of production is where the value to consumers of the last unit consumed is just equal to its cost of production. Beyond this point, extra units are worth less to consumers than they cost to produce, and society as a whole loses.

A central question addressed by economists concerns the circumstances under which the economy will end up providing various commodities in the socially correct amounts. When the prices of commodities produced by the private sector reflect the costs of production, as is the case in competitive markets, economists are confident that the socially optimal outcome occurs. This is due to the fact that consumers increase their consumption of any commodity up to the point where the value of the last unit to them is equal to the cost of acquiring it (the price). But since the price equals production cost in a competitive market, consumers end up equating the value of the last unit consumed to the cost of producing it. As a result, they fulfill the economist's desideratum for social efficiency.

While economists are confident of the power of competitive markets to provide goods in the socially optimal amounts, they worry that socially optimal outputs will typically not be chosen for commodities provided by the public sector. The essential reason for this difficulty is that the nature of public services greatly limits the freedom of individual choice. While a consumer is free to choose his own levels of consumption of apples and oranges, he must of necessity consume exactly the same amount of police protection or public school education as his fellow consumers. In other words, since public services by their very nature cannot be tailored to individual tastes, everyone must settle for the same quality schools and same level of police protection. As a result, a centralized rather than individual choice process must be adopted to choose the level of public services. The danger is that such a process will fail properly to account for the benefits generated by public services and thus lead to the wrong amount of services being provided.

To grasp this point, let us apply the rule for choosing socially correct outputs to the case of a public service. For concreteness, consider the case of police protection and suppose we are trying to determine the socially optimal size for the police force in a community. Recall that the rule for deciding whether an extra unit of a good (an extra policeman in this case) is socially desirable is that the dollar value of benefits generated by the extra unit should be at least as great as the cost of providing it. In the case of an extra policeman, the calculation of cost is easy: it is simply equal to the policeman's yearly salary. Calculating the dollar value of benefits from an extra policeman is much different, however, from calculating the benefits to a consumer from consumption of an extra apple or orange. While my consumption of an extra piece of fruit benefits *me alone,* an extra policeman benefits *every member of the community* by slightly increasing the level of police protection available to all. To find the dollar value of benefits from an extra policeman, it is therefore necessary to *add* the benefits generated for each and every resident of the community. The fact that, unlike an apple, the policeman is jointly "consumed" by everyone makes this addition necessary.

When is the hiring of an extra policeman justified from a social point of view? Applying our rule, the answer is that such a hiring is justified as long as the benefit, in dollar terms, from the policeman, summed across all members of the community, is at least as great as the policeman's salary. When does the police force reach the socially optimal size? This size is reached when adding a policeman generates a sum of benefits exactly equal to his salary.

With the above social-choice rule in focus, it is clear why centralized decision-making will typically fail to provide a public service at the correct level. Consider the case of a city manager attempting to decide on the number of officers to hire for his community's police force. To make the correct decision, the city manager needs to know the benefits yielded by extra policemen for each and every resident of the community. But this vast body of information is not available to any city manager! Nowhere can a city manager find a tabulation of the tastes of all of his constituents for police protection. As a result the manager can only make an educated guess as to the correct size for the police force. If he underestimates the benefits generated by police protection, the police force will end up being too small from a social point of view. If he overestimates benefits, he will hire too many policemen.

It should be noted that the city manager cannot simply ask his constituents to report the benefits they receive from police protection in order to determine the correct spending level. The reason is that individuals will understate their valuation of police services in hopes of securing a low tax liability (economists refer to this as "free-rider" behavior).

In view of this discussion, it might appear that we should give up hope of ever being able to find a foolproof way of discovering the socially correct level of public spending. However, as will be seen in the next section, the relationship between property values and public expenditure can provide the city manager with the information he lacks, allowing him to set spending at the correct level.

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Property Values and Public Spending

The basic premise underlying the economist's approach to property values and public spending is that consumers register their positive valuation of public services through a willingness to buy or rent property which gives them access to these services. For example, renters will be willing to pay a higher monthly rent to live in an apartment located in a good school district than to reside in an equivalent apartment in a district with poor educational quality. The extra rent measures the dollar value of the extra educational quality available in the good school district. The same argument applies when we consider the effect of increasing any public service (for example, the level of police protection) within a given community. Since all apartments in the community become more attractive as a result of better police protection, competition among consumers bids up rents. As before, the rent increase for any given apartment exactly captures the benefits of the extra police protection from the tenant's point of view.

Extending this discussion, let us consider the effect on property values of an increase in public services. Suppose for simplicity that the community in question is composed entirely of renters, so that the above principles apply. The first thing to realize is that the value of a rental property is equal to the capitalized flow of net returns to the owner. The net return is simply the difference between the rent which the property commands and the owner's property tax liability. Suppose we add up the values of all rental properties in the community. Since value is essentially rent minus taxes, it follows that total property value is given by total rent minus total property taxes (this difference must be adjusted by the capitalization factor). It is this fact, together with the impact of public services on rent that permits us to solve the city manager's problem.

Suppose the city manager increases the level of public services slightly by hiring an extra policeman. Since police protection has improved, rents for all the apartments in the community rise slightly. At the same time, the policeman's salary must be covered by taxes, so property taxes rise for all rental dwellings. Since total rents and total taxes have risen, total property value, which essentially equals the difference between the two, could either rise or fall. Suppose total value rises. What can the city manager infer as a result? Recalling that the rent increase for each apartment measures the benefit of the extra police protection to its tenant, it follows that the total increase in rents for the community captures the total benefit (for all tenants) of the extra police protection. Since the tax increase is just equal to the policeman's salary, the fact that total property value (total rent minus taxes) rose means that the total benefit generated by the extra policeman exceeded his cost to the community. The increase in total property value means that hiring the extra policeman was justified from a social point of view!

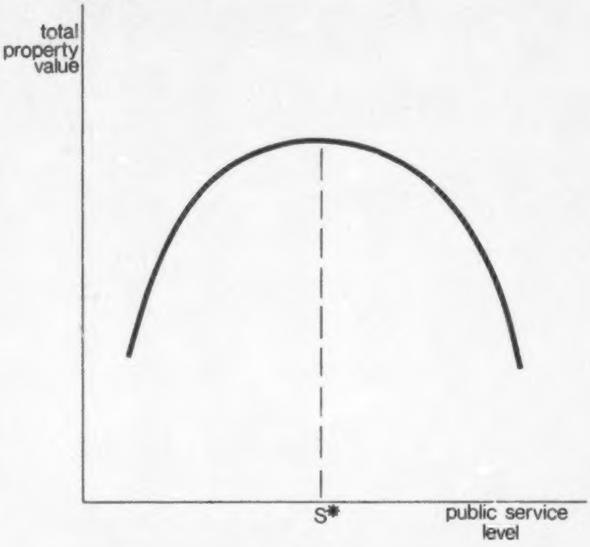
As long as total property value keeps rising, extra policemen yield benefits in excess of their cost to the community. Consequently, the police force reaches its socially optimal size when adding a policeman has no effect on total property value. The absence of a change in total value means that the increase in total rent from the extra policeman is just balanced by the increase in taxes, indicating that the policeman's value to society is just balanced by his cost.

Since total property value stops rising when the police force has reached its socially optimal size, it follows that total value has achieved a maximum. This is illustrated in the Chart, which plots total property value against the level of a given public service (the size of the police force in the present case). As the service level rises up to S*, total property value keeps rising, indicating the desirability of more services. At S*, a maximum is reached; while beyond S*, further increases in the service level reduce total value. The property-value-maximizing public service level, S*, is socially optimal.

The beauty of the property-value-maximization rule is that the information requirements for choosing the optimal level of public services, which were previously insurmountable, become quite manageable. Since property values incorporate all the relevant information regarding consumer valuation of public services, the records of the city tax assessor provide all the data needed to pick the correct spending level. This remarkable conclusion shows the value of careful economic analysis applied to the relationship between property values and public spending.

The discussion so far has assumed that the community is composed entirely of renter-occupied dwellings, ignoring the existence of owner-occupied houses and commercial and industrial property. In effect, we have been concerned with a bedroom community of renters. However, it may be shown that the economic argument underlying the property-value-maximization rule remains valid even when owner-occupied houses and business property are present.

Chart. **Total Property Value Compared to the Level of a Given Public Service**



Although property-value-maximization is workable in principle, operational problems do exist. Since assessments are conducted relatively infrequently, the response of property values to a change in public services would show up only with a long lag. As a result, the city manager's ability to get timely feedback on the results of a spending change would be impaired. While this problem definitely reduces the usefulness of the property-value-maximization rule as a device for fine-tuning the public service level, the principle is useful nevertheless. Public officials should be aware that any public spending change which raises the total value of a community's property is desirable. Such a change represents a movement toward the socially optimal level of public services.

How Housing Starts Are Estimated

KAREN MOKATE

Housing starts are often reported as a "leading economic indicator," a clue to the overall state of the economy. Forecasters often look for signs of improvement in housing starts to signal overall economic recovery. Housing-start statistics are also used to estimate and to forecast variation in rental income, in construction employment, in real estate activity, in rental activity, or in overall employment in a given geographical region. They are also calculated in order to develop an approximation of the stock of housing units.

Although housing-start statistics are often cited, the source of those statistics is not generally known. There is no agency to which contractors must report the day that they break ground for a new residential unit; there is no building department official who surveys his or her jurisdiction each week to see how many new residential units have been started. Housing starts are estimated based on the number of building permits which have been issued; the permit-authorization statistics are then adjusted to reflect the number of starts in any given time period.

The purpose of this article is to contribute to public understanding of the process by which housing starts are estimated. The first section describes the process that the US Bureau of the Census uses to move from permit authorization statistics to its final, seasonally adjusted housing-starts approximation. Second, the methodology is applied to the housing-permit authorization data of the State of Illinois of the past four and one-half years.

Estimation of Housing Starts: Census Bureau Methodology

The Construction Statistics Division of the US Bureau of the Census gathers data on the number of building permits issued in 16,000 permit-issuing places across the United States. The data for private residential building permits include each of the following categories: Single-Family, Two-Family, Three- and Four-Family Residences, Residences for Five or More Families, and Mobile Homes.

The Census Bureau uses a sample of the 16,000 permit-issuing sites to estimate the number of permits issued throughout the nation. The move from an estimate of *permits* to an estimate of housing starts requires several adjustments. There are three different bases for discrepancies between the number of permits which were authorized in the month and the number of units started in that same month.

First, adjustment must be made for construction which begins in a month different from the month in which the permit was issued. The Census Bureau draws a sample (a subsample) of the permit-issuing sites and requests that inquiries be made to determine in what month the construction for which permits were issued began. In that manner, a series of ratios can be calculated as follows:

$$\text{Start Rate} = \frac{\text{\# of starts in month } t \text{ with permit issued in } t}{\text{total permits in } t}$$

$$\text{One-Month Lag Rt} = \frac{\text{\# of starts in month } t+1 \text{ with permit issued in } t}{\text{total permits in } t}$$

$$\text{Two-month Lag Rt} = \frac{\text{\# of starts in month } t+2 \text{ with permit issued in } t}{\text{total permits in } t}$$

$$\text{One-Month Lead Rt} = \frac{\text{\# of starts in month } t-1 \text{ for which permit not issued until } t}{\text{total permits in } t}$$

$$\text{Two-Month Lead Rt} = \frac{\text{\# of starts in month } t-2 \text{ for which permit not issued until } t}{\text{total permits in t}}$$

Thus, for any month, the adjustment for delayed and/or early starts can be calculated as follows:

Starts in t = start rate (# of permits in t) + (one-month lag rate) (# of permits in $t-1$) + (two-month lag rate) (# of permits in $t-2$) + (three-month lag rate) (# of permits in $t-3$) + ... + (one-month lead rate) (# of permits in $t+1$) + (two-month lead rate) (# of permits in $t+2$) + ...

This equation, then yields an estimate of the number of units that were started in month t with permit authorization during any of several different months. The adjustment took care of those units which were never started although a permit was issued as well as those which were started with a delay after permit authorization and those started before authorization. In short, it places permit statistics in the proper time frame for the construction-starts estimate.

A further adjustment must be made in order to incorporate those units started without authorization. First, the Census Bureau makes upward adjustment in the number of housing starts to take care of the construction which is begun within permit-issuing areas but without a permit. The adjustment made for the US total is an upward adjustment of 3.3 percent.

Further and less-significant upward adjustments are made to include permit authorizations which are reported late.

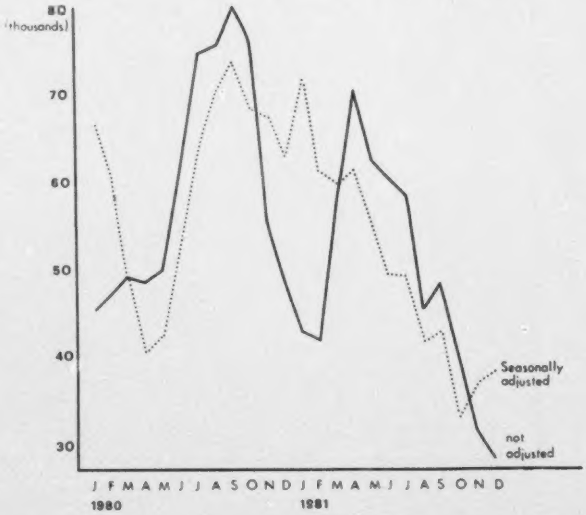
At this point, the result is an estimate of the number of housing starts within the 16,000 permit-issuing places in the US.

A final adjustment is made to the estimated number of housing starts in order to account for those areas of the nation where no building-permit system exists. The Census Bureau estimates that 88 percent of all private residential units in the US are constructed in areas covered by a permit-issuing jurisdiction. This final adjustment, then, is to include the remaining 12 percent in the housing start estimate.

When all of these adjustments have been made, the result is an approximation of total private housing starts for the nation as a whole.

Repetition of this process each month would allow us to compare the pattern of private construction starts across time. However, we would quickly find that there is an intrayear pattern of variation in construction starts which repeats itself year after year: lull in December, January, and February due to the cold weather, peaks in May and June as well as variation due to the different

Chart 1. Single Family Homes Started in Permit-Issuing Places in the US



number of days in each month. There exist statistical techniques known as seasonal adjustment which allow these seasonal fluctuations to be "taken out" of the data. (See *Illinois Business Review*, June 1982.)

The Census Bureau uses its X11 Seasonal Adjustment program to "smooth out" the housing-starts data series. In that way, more meaningful comparison can be made of the changing nature of the housing market at any given time. The objective of removing the seasonal factor is to allow us to see whether the peak or the lull of any given month is due to climatic or other seasonal conditions which are to be expected or whether it is due to a change in the economic conditions affecting the market or some other less-expected cause. Chart 1 illustrates the impact of seasonal adjustment on the total number of single-family home starts within permit-issuing places in the US during 1980 and 1981.

We can see that the seasonal-adjustment process pulled up the low points of January and February; conversely, it corrected for the high construction activity of the summer and early fall. Where the unadjusted series made it appear that there had been a sharp decline in the construction of new homes in late 1980 followed by a recovery in the spring of 1981, seasonal adjustment allowed us to see that there has been an overall decline in construction. The decline and sharp recovery seen in the unadjusted series between November 1980 and March 1981 were expected fluctuations caused by winter weather; those fluctuations were smoothed out by seasonal adjustment.

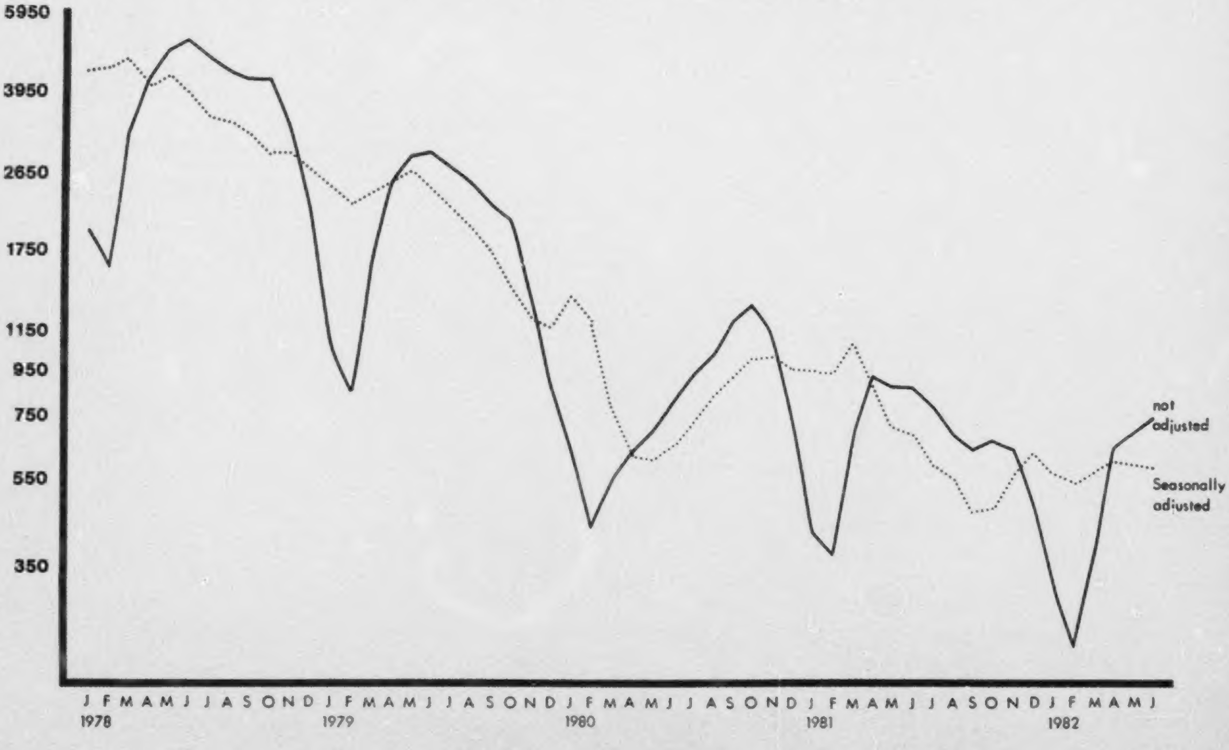
It may be of interest to note, however, that even the seasonally adjusted series shows a significant decline throughout 1981.

An Example: Housing Starts in Illinois, 1977–1982

Permit-authorization data for the State of Illinois are collected and aggregated by the US Bureau of the Census. There are over 800 permit-issuing places in the state. We can use the data from these permit places to estimate the private, single-family housing starts in Illinois. We will use the permit data from September 1977 through July 1982 to estimate housing starts from January 1978 through May 1982.

Departing from the total number of permits for single-family homes reported to the Census Bureau (see Column 1 of Table 1), we need to make the adjustments described earlier. Although no subsample of the state has yielded area-specific start-rate statistics, an unpublished, internal study by the Census Bureau has found that on average, in 57 percent of the cases, construction begins in the same month that the permit was authorized, while in 25 percent of the cases it begins the following month, and in 7 percent of the cases, two months later. The three-month lag rate is 3 percent; the four-month lag rate, 2 percent. Further, the study showed that 2 percent of the permits authorized were issued one month after construction had begun, while 1 percent were issued two months after construction's start. Assuming that these statistics roughly approximate the behavior of

Chart 2. Housing Starts in Illinois, Jan. 1978–May 1982 (Seasonally Adjusted and Not Seasonally Adjusted Series) (Semilog Scale)



construction activity in Illinois, we can estimate the number of units started in each month for which a permit was (at some point) issued. The results of that approximation appear in Column 2 of Table 1.

Next, we accommodate those units started without a permit in those areas where a permit system exists. We will use the 3.3 percent adjustment that the Census Bureau has adopted; the addition of that 3.3 percent will generate an estimate of housing starts within permit areas.

Finally, we adjust for housing starts in areas within the state not under the jurisdiction of a permit-authorization system. Although a precise figure on how much of Illinois is not covered by a permit-issuing system is unavailable, the Census Bureau estimates that only 7 percent of the state's population lives in such areas (as of November 1981). If we assume that the participation in the home building "market" is uniformly distributed throughout the population, we need only add 7 percent to the total number of starts in permit areas. The two adjustments just described yield the estimates of total private housing starts in the State of Illinois (Column 3).

We can now use the X11 Seasonal Adjustment program to arrive at the final, seasonally adjusted housing-starts series found in Column 4. The unseasonally adjusted series as well as the seasonally adjusted series are graphically depicted in Chart 2.

Examining the final seasonally adjusted series, we see an overall downward trend in Illinois housing starts over the entire period. The decline during the last two quarters of 1979 was significant; housing starts have not even approached their mid 1979 level again. The recovery of late 1980 lost its momentum, and 1981 and 1982 have seen record "lows" for housing starts.

Comments and Conclusions

The process of estimating housing starts is not, of course, exempt from criticism. Like any estimation process, it cannot yield exact figures for the number of units started in any given time period.

A note should be made here that the entire process just described is only appropriate for estimation of the number of privately owned, single-family home starts. To estimate the number of multi-family residences started, slight alterations would be made to the process; for example, no adjustment would be made for the number of units started without a permit but within a permit-issuing area. A study covering a four-year period has shown that permits were obtained for all buildings of two or more units. To estimate the total number of housing starts, whether it be single-family, multi-family, or total number of units, data on the number of public housing starts would need to be obtained and added to the number of privately owned units started.

The appropriateness of the described process will depend on the objective that one has in mind in developing the data series; modifications may have to be made in order to tailor the estimation to the project. The process as presented may be suitable for an examination of the impact of the overall economic cycle on housing starts in Illinois. If, however, we hope to estimate and/or forecast employment in the construction industry, we would eliminate the seasonal adjustment process. Further, we would want to include not only single-family homes but also multi-family residences. Alternatively, housing starts may be estimated as part of the process of developing an estimate of the stock of housing units; in that case, we again need to include multi-family residences. If that housing-stock index were to be used to estimate the number of persons per household in Illinois, permits au-

TABLE ONE

	PERMITS, SINGLE FAMILY HOMES (1)	STARTS AUTHORIZED BY PERMIT (2)	TOTAL STARTS, NSA (3)	TOTAL STARTS, SA (4)
SEPT,1977	4235.00	********	********	*******
OCT	4012.00	********	********	*******
NOV	4028.00	********	********	*******
DEC	1982.00	********	********	*******
JAN,1978	1181.00	1720.60	1901.80	4211.00
FEB	1411.00	1554.87	1718.61	4434.00
MARCH	3669.00	2800.95	3095.92	4531.00
APRIL	4215.00	3640.79	4024.20	4128.00
MAY	4988.00	4351.55	4809.81	4116.00
JUNE	4739.00	4495.63	4969.06	3918.00
JULY	3708.00	3963.89	4381.33	3496.00
AUGUST	3990.00	3879.67	4288.24	3340.00
SEPT	3679.00	3700.77	4090.50	3207.00
OCT	3912.00	3701.28	4091.06	3070.00
NOV	2651.00	2971.48	3284.41	2875.00
DEC	1335.00	1902.89	2103.28	2723.00
JAN,1979	432.00	989.05	1093.21	2394.00
FEB	654.00	797.75	881.76	2270.00
MARCH	1947.00	1482.35	1638.46	2398.00
APRIL	2681.00	2193.13	2424.09	2453.00
MAY	3213.00	2746.21	3035.41	2606.00
JUNE	2851.00	2757.53	3047.93	2421.00
JULY	2298.00	2433.54	2689.82	2155.00
AUGUST	2409.00	2353.03	2600.83	2029.00
SEPT	1847.00	2013.45	2225.49	1754.00
OCT	1888.00	1858.30	2054.00	1543.00
NOV	1000.00	1305.90	1443.42	1253.00
DEC	580.00	829.22	916.55	1184.00
JAN,1980	478.00	593.46	655.96	1414.00
FEB	331.00	434.59	480.36	1235.00
MARCH	580.00	504.48	557.61	821.00
APRIL	646.00	585.28	646.92	644.00
MAY	735.00	667.22	737.48	636.00
JUNE	825.00	753.97	833.37	670.00
JULY	1018.00	902.29	997.31	799.00
AUGUST	1037.00	977.31	1080.23	843.00
SEPT	1261.00	1126.24	1244.84	982.00
OCT	1378.00	1245.35	1376.50	1035.00
NOV	995.00	1064.20	1176.27	1021.00
DEC	511.00	703.17	777.22	1003.00
JAN,1981	259.00	426.61	471.54	999.00
FEB	294.00	354.08	391.37	1000.00
MARCH	914.00	676.17	747.38	1103.00
APRIL	1029.00	877.56	969.98	950.00
MAY	775.00	800.30	884.58	769.00
JUNE	846.00	800.62	884.93	721.00
JULY	640.00	698.20	771.73	619.00
AUGUST	652.00	652.25	720.94	564.00
SEPT	546.00	579.08	640.06	506.00
OCT	664.00	612.51	677.01	508.00
NOV	590.00	581.93	643.21	556.00
DEC	397.00	453.48	501.24	647.00
JAN,1982	111.00	242.20	267.71	561.00
FEB	157.00	192.53	212.81	542.00
MARCH	440.00	343.84	380.05	563.00
APRIL	772.00	593.21	655.68	637.00
MAY	687.00	642.88	710.58	621.00
JUNE	717.00	670.34	740.93	609.00
JULY	622.00	******	******	*******
AUGUST,1982	708.00	******	******	*******

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thorized for mobile homes would also need to be included. Care must be taken to include the specifications of the project in the estimation process.

Thought must be given to the assumptions that underlie each step of the estimation process. In the example of Illinois housing starts, we have assumed that the start rate and the lead and lag rates have remained constant over time. It is more probable that those rates vary and are especially vulnerable to the conditions of the financial market. The Census Bureau reestimates those rates periodically by drawing a subsample of permits and verifying the actual construction start date.

In making the upward adjustment for housing starts in nonpermit-issuing places, we assume that the construction pattern in those areas is the same as in permit-issuing regions. That, however, may not be the case; areas with no permit system tend to be more rural and less densely populated than those with such a system. It is likely, then, that the construction rates in the two areas differ and, furthermore, that they are affected in different fashions by any given economic condition. The upward adjustment would seem to overstate the construction in nonpermit-issuing areas.

Much criticism of the housing-starts estimation is actually criticism of estimation techniques in general and, often, of seasonal-adjustment techniques. Those techniques tend to exaggerate the extreme points (or "outliers") of any data series.

Every time a housing-starts estimate is developed, the process must be tailored to fit the overall purpose. In turn, every time that we rely on such an estimate in order to say something about the overall economic condition or about the housing market, we must consider the process that underlies the final estimate.

BEA COUNTY DATA FOR ILLINOIS

We now have new 1980 county data from the US Bureau of Economic Analysis for four economic series: personal income, employment, farm income, and transfer payments. Tables are available for each county, providing data on an economic series for 1975–80. Sets including *all* Illinois counties are also available for each series for 1975–80. In addition, similar tables for 1969–74 are available in each series for each county. Send $20 per set and $1 per individual page (minimum charge, $5) to Bureau of Economic and Business Research, UIUC, 428 Commerce West, 1206 S. Sixth Street, Champaign, IL 61820.

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Indexing Government Debt as a Means of Lowering the Federal "Deficit"

DON ROPER

Ever since the distinguished Yale economist Irving Fisher began promoting the use of price indices in the early part of this century, economists have generally favored the use of such indices in contractual agreements. Social security and many wage contracts have been indexed, but creditors and debtors have been conspicuously reluctant to index debt contracts, except in some of the most inflation-prone countries.

Given the uncertainty of the future path of commodity prices, both creditors and debtors undertake considerable risk in purchasing power when they enter into a long-term contractual agreement fixed in terms of money. As a result, new issues in the long-term capital market have today slowed to a trickle. For 20-year corporate debt, is 15 percent low or high? It might seem high by historical standards or in comparison with a current inflation rate of less than 10 percent. But who can say what the inflation rate will be over the next 20 years under several different administrations? Even during the '80s it is possible to get more double-digit inflation if, for example, high real interest rates prolong the current recession and thereby bring in a new administration which pursues an expansionary monetary policy. Unless there are fundamental institutional reforms which allow greater predictability in the overall price level, nonindexed debt is risky for both sides of the contract. One has only to reflect on the near-epidemic of potential and actual bankruptcies, domestic and international, to recognize the magnitude of the risk involved when contracts are made under the presumption of continuing inflation.

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In order to avoid high interest rates, American Air Lines, for example, sold future plane rides in return for spot cash. Similarly, companies which operated water canals in the previous century used to borrow money by issuing notes redeemable in passenger trips on popular canal ways. This is a way of indexing debt to something real, but it is not a viable option for most firms. Until indexation with the producers' price index or the consumers' price index or the GNP deflator becomes commonplace, most corporations will probably be reluctant to be the first in the capital market with such an uncommon debt instrument. This is a time when the country's largest debtor, the federal government, could lead the way and demonstrate how indexation lowers the real cost of borrowing.

The case for indexation is, of course, for long-term or, at least, intermediate-term debt. The rate of inflation is less difficult to predict in the short run than in the long run, and there is more error or noise in monthly data on price changes.

At the current time, much of the US federal debt is in T-bills, debt with an original term-to-maturity of one year or less. As long as Treasury debt is primarily short term, current federal borrowing costs will fluctuate with market conditions and the government deficit will remain unpredictable. Sooner or later, the current restriction on long-term issues will be lifted by Congress, and the Treasury will again borrow across the spectrum of maturities.

Indexation of intermediate long-term government debt would have an impact on the government budget which has not, to my knowledge, been recognized. In addition to obtaining lower real borrowing costs as a result of removing the inflation risk faced by creditors and in addition to setting an example for the private market, government debt indexation would lower the budget deficit. The larger the portion of

Real Estate Developments / *Page 6*
Airline Service and the Business Climate / *Page 10*

the government debt which is in notes or bonds rather than bills, the greater the decline in the budget deficit as a result of indexation. The potential magnitude of this effect is not trivial, as I hope to convince the reader in the remainder of this article.

The consequences of indexation should be separated from the question of how indexation is introduced. It is not the purpose here to study the way the change might be effected. I only want to compare the budget deficit under two alternative states of the world, one in which debt is not indexed and the other in which intermediate- to long-term debt is indexed. A simple numerical example will illustrate the consequences.

To dramatize the potential effect on the budget deficit, it will be assumed that the entire debt is long term. To simplify computations with round numbers, let us suppose that total Treasury debt outside the holdings of Federal Reserve Banks is $1 trillion, that Treasury bonds trade at par and yield a stable 12 percent, that the long-term inflation rate is 10 percent, and that the current budget deficit is $100 billion. In this world, the first year budgetary cost of servicing the nonindexed trillion dollar debt is $120 billion, $20 billion is raised through taxes, and the remaining $100 billion raised through new issues of debt. Under these assumptions, the real or net-of-inflation return is 2 percent. Two percent may seem small to many investors who are fond of contemplating larger real yields, but it is actually on the high side when one examines the historical data on government yields and inflation.

The usual argument for indexation rests on lower real borrowing costs. In other words, the real or net-of-inflation interest rate should be lower as a result of eliminating the risk of the potential loss of purchasing power due to inflation uncertainty. But the impact of the budget deficit under consideration here is independent of lower real yields. We will assume that the 2-percent real yield that investors are assumed to receive when the debt is not indexed remains unchanged when the debt is indexed.

If it is assumed that creditors receive a 2-percent real yield on indexed debt, then, in our numerical example, the entire budget deficit is, as we shall see, totally eliminated! The reason for this rests on the assumption that $100 billion of the $120-billion cost of servicing the nonindexed debt serves the purpose of compensating bondholders for their loss in purchasing power (the 10-percent inflation loss on $1 trillion of debt). When the debt is indexed, creditors are compensated by a different method. Rather than the Treasury raising $100 billion to pay the inflation premium imbedded in the 12-percent yields on nonindexed debt, the face value and interest payments (which are a fixed percent of the face value) on indexed debt are automatically adjusted with inflation. The Treasury no longer has to raise cash to reimburse investors for the erosion in their purchasing power since investors are now protected by contract.

It may be useful to illustrate how the annual yields on both indexed and nonindexed debt are computed under the continuing assumption, in both cases, that the inflation rate remains steady at 10 percent. In the nonindexed world, the return on a government bond with a face value of, say, $1,000 is just the annual interest payment, $120, divided by the trading price. It is assumed that the nonindexed bond is selling at parity and that the price is stable so that there are no capital gains or losses. The yield-to-maturity and the coupon rate are both 12 percent, given by the ratio of the interest payment, $120, to the trading price, $1,000.

In the indexed world, investors must again receive a 12-percent nominal yield to obtain a 2-percent real yield, but most of the yield is now in the form of capital gains. Given the 10-percent inflation rate, the face value rises at 10 percent annually due to indexation. The market price of the indexed bond must continually rise to follow the face value up. If, at any time, the market price fails to rise at the rate of inflation, there will be even larger capital gains for bondholders in future years. If a bond paid 2 percent of face value annually and appreciated 10 percent annually, bondholders would receive a 12-percent annual yield. In short, five-sixths of the 12-percent nominal yield comes through rising bond prices. With indexed debt, the dollar value of the entire debt would rise, in the first year, by $100 billion, not through new Treasury issues but through appreciation of market values of the existing securities outstanding.

We must distinguish between lowering the deficit, as it is ordinarily defined, and lowering the debt. Indexation does the first but not the second. To make this clear, consider the following algebra: Let B stand for the number of bonds outstanding and P represent the price of each bond, so that PB is the money value of the outstanding debt. In our example, the dollar value of the debt is growing at 10 percent annually, with or without indexation. But whether the 10-percent annual increase in PB is due to an increase in P or B depends on whether the debt is indexed. In the nonindexed world, we assume that the entire 12-percent yield is through cash payments to bondholders. $100 billion of the cash payment is assumed

(continued on p. 11)

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The Illinois and Michigan Canal: A Powerful Influence on State Development

SUSAN FAY

The Illinois waterway serves as a link between two of the major inland navigation systems in the US — the Great Lakes and the Mississippi River. Its importance as a link in the regional transportation network is somewhat overshadowed by the existence of rail, air, and especially, highway transport. However, in its earliest form, the waterway had a tremendous impact upon the development of Illinois and the Midwest. In particular, the construction of the Illinois and Michigan Canal (between 1836 and 1848), which served as a link between the Illinois River at LaSalle and the Chicago area river system, influenced the character of immigration to the state, shifted the distribution of population toward Northern Illinois, and enhanced the development of large-scale agriculture. Another interesting aspect of the canal concerns the extent of the involvement of the state government in its construction and finance.

A Link in the Natural Transportation System

A brief history of the Illinois and Michigan Canal cannot exclude a note on the long period of agitation for its construction relative to the period during which it was of most value as an artery in the region's transportation system. As early as the 17th century, Joliet commented upon the relative ease of a connection between the Illinois River and the Chicago River system and, hence, the Great Lakes. Prior to the development of permanent settlements in Northern Illinois, trappers and Indians used the route as a portage, although their ability to do so depended upon the season and the amount of rainfall the area received. Continual comment upon the auspiciousness of the project was made prior to Illinois' statehood. The route was believed to be of most use as a link in the area's defense, rather than as a commercial interest. What we know as Chicago was originally Fort Dearborn, an outpost constructed in 1803 by the US government for the purpose of defending the Northwest Territory. Fort Dearborn was attacked during the War of 1812 and, due to the difficulty encountered in sending reinforcements from the south, was defeated.

Chicago's Relationship with the Canal

Although modern observers may view Chicago (Fort Dearborn) as a natural commercial center for the state because of its location on Lake Michigan, it is surprising to discover that, at the time of Illinois' admission to statehood in 1818, Southern Illinois, thanks to the Mississippi, Sangamon, and (lower) Illinois rivers, was the more populous part of the state. The distribution of population prior to the 1830s demonstrates that adequate transportation was crucial to the development of regions within the US. Although what was to become Chicago was situated on the Great Lakes and, hence, had access to the east, it could only have served as a terminus rather than as a shipping point. Without the canal to link Chicago to the Illinois River and the interior of the state, Chicago could not have been transformed into a commercial center until the advent of the railroad. The town of Chicago was not plotted until 1829, 11 years after Illinois became a state, while the lower "triangle" of Illinois that lay between the Ohio and Mississippi constituted the "hub" of the state.

Although actual construction of the canal did not begin until 1836, 18 years after statehood, agitation for it began in earnest with Illinois' admission to the Union. The proposed project was of such importance that the original state boundary line with Wisconsin was moved north so that the entire canal would be included in Illinois. Chicago and the 14 northernmost counties would have been part of Wisconsin, had it not been for the desire of early statesmen to insure that interest in the canal would not wane because of the effects of shared construction. Had Chicago remained in Wisconsin, the benefits accruing to Illinois due to the creation of the canal would have been much smaller. Had construction taken place under the aegis of two states, it is likely that there would have been much disagreement over the proportion of construction costs that was appropriate for each state to bear. As it turned out, finances would prove to be the most difficult obstacle to overcome, and the decision to construct the canal entirely within Illinois was a wise one.

The first formal gesture made towards starting the project was made by Congress in 1822 when the state was granted land for the express purpose of digging a canal. Subsequent surveys and cost estimates were made to no avail because there proved to be no method for financing the operation. The state's finances were inadequate, and a private corporation was granted the right to build the canal and collect the revenues. Oddly enough, the corporation was unable to sell its stock, and the plans were put aside.

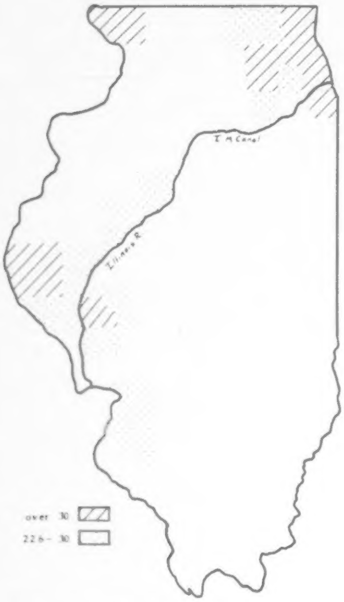
The method of finance that was finally chosen turned out to be crucially important to the character of development in northern Illinois. In 1827 the US government granted land to the state to be sold to raise the necessary funds for construction. Towns were created along the proposed site, among them Chicago. Although the land at both ends of the canal — Chicago and Ottawa — found a ready market, sales in the interior ranged from slow to nonexistent. It was not until the Indians were defeated and left the area in 1832 that it witnessed increases in population and demand for canal land.

Effects on the Character of Immigration

Initial migration into the area consisted of easterners who had travelled via the Erie Canal (completed in 1825) and the Great Lakes. Such migration

MAP 1

POPULATION PER SQ. MILE AND TRANSPORTATION FACILITIES, 1850



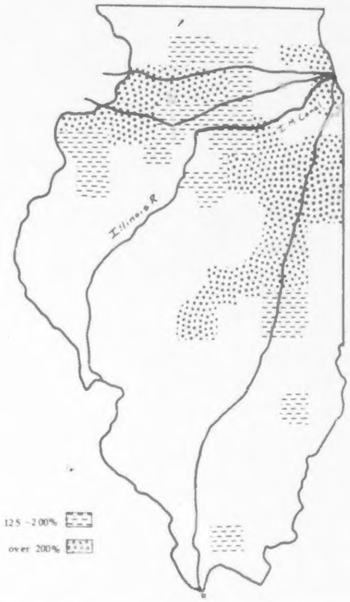
Compiled by Charles J. Jorgensen, University of Washington, June 1960.
Sources: US Census 1860; American Railway Guide, 1851.

was part of a nationwide phenomenon. The eastern soil, never the most fertile, had begun to wear out, and the rumors of the rich prairie soil tempted many to migrate to the northwest. It is most interesting to note the effect that the canal had upon settlement more than a decade prior to its completion. According to the historian of LaSalle County, "The prospect of avoiding the long and tedious trip to Chicago to market grain, and the cheapening of commodities needed by the people, had a wonderful effect to induce settlers to locate here." Examination of Map 1 will further illustrate the point being made. In 1830, Chicago and most of the state north of the navigable part of the Illinois River was nearly uninhabited. However, Map 1 indicates that just 20 years later, and just two years after the completion of the canal, the Chicago area was one of the most densely populated areas in the state. The implication is that much of the growth in the area occurred prior to 1848.

The canal also influenced population growth and character in another important way. It was estimated that 75 percent of the canal workers were Irish immigrants. When work on the canal was suspended due to the Panic of 1837 and after the canal was completed, many Irish workers settled permanently in the counties along the canal route. German immigrants also constituted a sizable proportion of those who came to the area to farm before the canal was completed.

MAP 2

POPULATION GROWTH 1850–1860, BY PERCENT



Compiled by Charles J. Jorgensen, University of Washington, June 1960.
Sources: US Census, 1860 and G. R. Taylor and I. D. Neu, *The American Railroad Network, 1861–1890*, Harvard U. Press, 1956.

Financial Difficulties

The state's involvement with the finance of the canal was not limited to agitation for federal land to sell. Although there was no difficulty in selling the interior land after 1832, it was necessary to borrow an additional $500,000 in order to proceed with construction. Bonds were to be issued with the future revenues serving as collateral. This proposed bond issue was a failure because investors doubted the viability of the undertaking: private capitalists expressed reluctance to provide backing for the project, presumably because they felt that the risk involved was too great. However, further agitation for the construction of the canal caused a bill to be passed allowing the governor to negotiate a loan with the backing of the state. Construction began less than one year later.

Financial problems were to plague the canal throughout its 12-year construction period. Additional land was put up for sale, and additional loans were negotiated. It was the severity of the nationwide Panic of 1837 which posed the most serious threat to the completion of the canal. Although a $4 million loan was successfully negotiated (via the eastern states and Europe), for the purpose of continuing construction a little longer, in 1841 even these funds were depleted, and work was halted for nearly two years. This delay caused those in favor of completion to alter their plans and press for a less-expensive, shallower canal than had been originally suggested. The state placed utmost priority upon the completion of the canal; a $1.6 million loan was obtained with future revenues and canal property serving as security. The loans were negotiated with utmost care — evidence indicates that the politicians of the time (Governor Thomas Ford is notable) took steps to assure creditors of the value of the project. The senselessness of abandoning a project which had already cost the state $5.4 million by the time that work ceased must have been apparent to the state's creditors. After negotiation of the loan to begin work once more, the canal's business was transferred to three trustees, one appointed by the governor and the others elected by creditors. The financial crisis was over, and work was resumed.

Rapid Obsolescence

The Illinois and Michigan Canal was completed in 1848. Almost immediately it was in competition with the railroad for the transport of passengers, agricultural goods, gravel, and the many consumer goods that found their way to the prairie via New Orleans and the East. In 1852, just four years after completion of the canal, the Chicago and Rock Island Railroad was finished. It ran parallel to the canal but offered no serious competition until two years later when it was linked with the Mississippi at Rock Island. Although tonnage transported on the canal did not decline immediately (see the Table), it fluctuated considerably and was obviously not as high as it would have been in the absence of the canal. As Map 2 shows, by 1860 the population distribution had shifted away from waterways and towards areas that were served by the railroad. Just a decade earlier the area along the Illinois River was one of the most densely populated in the state while east central Illinois was nearly uninhabited. After the advent of the railroad, however, the situation was reversed. One would have expected that after the canal was in use the Illinois River area would continue to grow due to its place as a link in the Great Lakes to Mississippi waterway, but the Illinois and Michigan Canal was obsolete almost as soon as it was complete.

TABLE

Tonnage Carried on the Illinois and Michigan Canal

1849........	149,553	1870......	585,970	1891........	641,156
1850........	142,234	1871......	628,975	1892........	783,288
1851........	274,842	1872......	783,641	1893........	529,816
1852........	352,463	1873......	849,533	1894........	617,811
1853........	471,198	1874......	712,020	1895........	591,507
1854........	521,285	1875......	670,025	1896........	446,762
1855........	528,857	1876......	691,943	1897........	484,575
1856........	591,311	1877......	605,912	1898........	395,017
1857........	620,172	1878......	698,792	1899........	469,352
1858........	507,966	1879......	669,559	1900........	121,759
1859........	399,357	1880......	751,360	1901........	81,456
1860........	367,437	1881......	826,133	1902........	35,824
1861........	547,295	1882......	1,011,287	1903........	62,894
1862........	673,590	1883......	925,575	1904........	47,616
1863........	619,599	1884......	956,721	1905........	38,820
1864........	510,286	1885......	827,355	1906........	35,480
1865........	616,140	1886......	808,019	....	
1866........	746,815	1887......	742,074	1922........	14,350
1867........	746,815	1888......	751,055	1923........	9,047
1868........	737,727	1889......	917,047	1924........	2,179
1869........	817,738	1890......	742,392		

Concluding Remarks

It appears that the canal had significant effects on the development of the state of Illinois although these effects were unusual in that they occurred before the completion of the canal. Northern Illinois was settled in anticipation of the existence of a mode of transport for agricultural products. The prairie was developed earlier than it would have been without the canal; had it been necessary to await the construction of the railroad, the area would not have been settled until 15–20 years later than it was. Another aspect of the construction of the canal concerns its financial problems. Private investors expressed great reluctance to take part in the financing of the canal. Could they have foreseen the extent to which the railroad would dominate the transportation system in the later 19th century? Reservations were expressed once construction got underway (and indeed before) about the viability of the project since the railroad would eventually offer competition. Although this did prove to be the case, it is notable that the last of the canal bonds was retired in 1871, well before the final days of the canal.

Information for this article is derived principally from Helen Coard, *The Illinois and Michigan Canal as an Influence on Westward Migration* (Urbana: University of Illinois Press, 1941), and Bessie Ashton, *The Geonomic Aspects of the Illinois Waterway* (Urbana: University of Illinois Press, 1941).

Real Estate Developments

Regional Farmland Price Changes Leading to the Current Decline in Values

JOHN T. SCOTT, JR. and DAVID L. CHICOINE

Farmland prices increased rapidly in the decade of the 1970s, reaching the second farmland price peak in this century. The first price peak occurred in 1920. From 1920 to 1929, farmland values in the Midwest generally declined about 4 percent per year, a relatively slow but continuous decline over a nine-year period. From 1929 to 1933 land values declined 45 percent. After 1933, land values began a long ascent — very slow at first, then at moderate rates from 1950 to 1970, and at accelerated rates in the late 1970s. However, land prices did not reach their previous 1920 level again until 1950.

After 1975, the payment needed on new mortgages (at current land prices and interest rates) was getting too far out of line compared with land income. The divergence in financing requirements and net land income that widened in the latter 1970s could not continue indefinitely. Either farm income had to rise and interest had to come down or farmland prices would fall. And it was land prices that gave way.

The third quarterly farmland price survey of the Federal Reserve Bank of Chicago for 1982 shows the average decline in Illinois land prices from 1 July to 1 October 1982 was 7 percent. This brings the reported total drop for the 12 months from 1 October 1981 to 1 October 1982 to 20 percent. To return to the relatively stable relationship between farmland rent and mortgage payments that existed from 1950 through the early 1960s would require additional adjustments in farmland values and interest rates or an improvement in rent. The largest percentage drops in farmland values are probably over. In the short run, federal farm programs limiting the production of commodities will increase farm incomes and tend to stabilize farmland prices in the Midwest at or near their present levels. However, a rebound is unlikely in the next two or three years. In fact, it may take the remainder of the 1980s to move past stabilization to a strengthening of farmland prices. It is difficult, though, to make any exact predictions. We still could be on the downside of the trough.

There are many reasons why farmland price increases or decreases may vary by region or area. The initial price level, for example, may be different, soils are not geographically homogeneous, the type of farming may change from one location to another, changes in technology may affect the response in crop production and land-use patterns differently by region, and outside, nonagricultural factors may have different impact on regions depending on their location relative to metropolitan areas or low-cost transportation routes.

The Economic Research Service of the US Department of Agriculture has been publishing average farmland prices and an Index of Land Values for each state, including Illinois, for several years. In fact, the Index has been published at least since 1912. The most recent USDA Land Value Index shows a 9-percent decline in average Illinois farmland values. This index covers the period 1 February 1981 to 1 April 1982.

Professional appraisers, farmland realtors, attorneys, Internal Revenue Service representatives, landowners, and tenants not only refer to the index, but depend upon it for comparable price adjustments over time, for land valuation in estates, for estimating list prices, and for rental adjustment between landowners and tenants. It is also an indicator to real estate owners and credit agencies of current conditions in the land market.

For appraisals where the number of comparable sales is limited, particularly in the year the subject property is being appraised, sales from previous years which are comparable except for time are used after adjustment by the Land Value Index. This procedure is frequently employed by Internal Revenue Service officials when inspecting values reported on estate tax, gift tax, and inheritance tax returns in order to estimate whether or not reported values are acceptable. Clearly, if there are significant regional differences in land price changes, a state average index of farmland values may not be very appropriate for these uses.

Some farmland cash leases use a formula approach to adjust the cash rent from year to year. It is common for cash rents to be annually adjusted by the ratio of current Land Value Index to the Land Value Index at the time the initial rents were negotiated. In this way the land price index becomes a very important tool for automatic lease adjustment, much as the Consumer Price Index becomes a tool in adjusting wages in the wage contracts of many industries. The USDA Land Value Index is relied upon in this context to determine the annual change in money transferred from the tenant to the landowner for the use of land. Only under very homogeneous conditions, however, would the change in rent on all farmland be expected to be the same over time. Regional indices of farmland prices would provide a more accurate base for adjusting cash leases.

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To overcome some of the problems inherent in having only a state-wide, average, farmland price index available, regional indices have been developed from farmland market data. The regional farmland price indices reported here cover the period 1975 through 1980 and are recommended as an alternative to be considered in most micro applications in Illinois where the USDA index has been used previously. Also, using the farmland market data to construct a state-level index provides a basis for comparing the USDA index to provide evidence on how well the USDA Land Value Index correlates with actual land sales.

Illinois Farmland Sales Data

A full mandatory disclosure law requires the reporting of all Illinois real estate sales on a transfer declaration. The declaration asks for information on sale price, type of sale, acreage sold, and terms of sale. Data from the declarations on all "bona fide, fair cash market" price transactions on farmland in parcels five acres and above for the years 1975 through 1980 are currently available (all sales which were contract for deed were excluded).

These data are not a sample, but in fact are the total population of all cash "arms length" transactions occurring in Illinois during this period. There were over 30,000 such sales during the six years. Table 1 gives the average price per acre, the number and proportions of sales, and the compound rate of change in average sale price over the six years for transferred farm parcels, grouped by tract size.

Table 1 shows a sharp decline in value per acre as tract size increases from 5 acres to 39 acres. Per acre values more or less level out as tract size increases above 40 acres. More people are financially able to buy a few acres, and so the potential number of buyers is greater for smaller tracts. This may account, in part, for the decline in per acre price as tract size increases. The inverse relationship between tract size and per-acre price, known as plattage value, in farmland markets has been observed by several researchers.

It can be argued, however, that very large tracts should sell for more than smaller tracts. The presence of plattage value in the market may reflect investors' willingness to pay more per acre for large tracts or large contiguous tracts in order to reduce their management costs. The data, however, do not generally support this proposition nor have other studies been able to confirm the existence of plattage value in land markets.

One explanation for the observed plottage value is that the per-acre building value is higher in smaller tracts. Unfortunately, analysis of the data did not support this contention. The average value of tracts with buildings was actually slightly less than the average value of tracts without buildings. Buyers may be willing to pay more for bare land than land with buildings because few existing buildings have any utility for farmers adding land to their present holdings and/or because the cost of building removal reduces tract value.

The rates of appreciation range from 13 percent for land sold in tracts 5 to 9 acres in size to 22 percent for land in tracts 40 to 59 acres in size, with an aggregate, compound appreciation rate of 18.06 percent. This is probably the highest rate of land appreciation for any period so far in the 20th century. It is significant that the highest rate of appreciation was on tracts over 40 acres in size. The smaller tracts which may have been home sites or agricultural land in transition to urban development were initially higher priced (probably including a higher value of buildings per acre) but did not appreciate as rapidly as the larger tracts. This relationship between farmland price levels and appreciation rates is consistent with prior research.

The distribution of the number of sales among size classes is bi-modal. That is, a large number of sales occur at two tract sizes. The smallest tract size (5 to 9 acres) has the largest number of sales in every year, and the number of sales consistently declines as the tract size sold increases. The exception being the 80 to 159 acre size which also has a large number of sales. This is consistent with the original land survey where the largest number of tracts were 80s and 160s.

There were 4,532 cash sales in the state in 1975 with little change in 1976. Sales increased sharply in the years 1977, 1978, and 1979 and then, just as suddenly, declined in 1980 to below the 1975 level.

TABLE 1

SUMMARY OF STATE DATA FOR 1975 THROUGH 1980

PRICE SALES, AND RATE OF APPRECIATION OF FARM LAND PER SIZE RANGE OF PARCEL SOLD FROM 1975 TO 1980[a]

	Price ($/acre)						Number of Sales						Percentage of Total Sales						Compound Rate of Appreciation
Size Range	1975	1976	1977	1978	1979	1980	1975	1976	1977	1978	1979	1980	1975	1976	1977	1978	1979	1980	1975-80 (percent)
5 to 9 acres	4,483	5,639	5,843	6,267	7,278	8,259	878	890	1,829	1,645	1,290	915	20	19	30	29	26	24	13.00
10 to 19	2,288	2,840	2,895	3,959	3,617	4,906	687	785	1,155	1,054	861	625	15	16	19	19	17	16	16.48
20 to 39	1,080	1,209	1,714	1,986	2,231	2,278	755	882	991	965	849	664	17	18	16	17	17	17	16.10
40 to 59	777	943	1,453	1,593	1,849	2,106	689	677	713	661	641	572	15	14	12	12	13	15	22.07
60 to 79	824	952	1,407	1,776	2,056	1,915	302	316	323	297	314	276	7	7	6	5	6	7	18.37
80 to 159	787	981	1,464	1,723	1,935	2,006	829	847	759	738	785	595	18	18	12	13	15	15	20.58
160 to 319	704	925	1,281	1,495	1,807	1,841	337	331	251	229	230	190	7	7	4	4	5	5	21.20
320 and above	669	791	828	890	993	1,746	55	75	70	75	62	36	1	1	1	1	1	1	21.15
Total	1,742	2,176	3,071	3,466	3,621	3,995	4,532	4,803	6,093	5,670	5,033	3,873	100	100	100	100	100	100	18.06

[a] Farmland refers to tracks of at least 5 acres of size. No sales data were reported for Cook County and 1980 sales data are incomplete for Franklin, Hardin, Kendall, and St. Clair counties.

Source: Real Estate Transfer Declarations for 1975-80, Illinois Department of Revenue, Springfield, Illinois.

The pattern of sales suggests that price increases do elicit a larger supply of parcels. At least more transactions took place with the sharply higher prices in the 1977–1979 period. This suggests that the supply of farmland is not completely price inelastic.

Illinois Farmland Sale Price Index

To calculate an arithmetic sale price index on a regional basis and statewide to compare directly with the USDA index, only tracts of ten acres and above were considered. The sale prices of the smallest tracts varied substantially from year to year between 1975 and 1980, especially on a within-state, regional basis. The smallest size classification was omitted from the averages used to calculate the Illinois state and regional indices. The regional indices, particularly where there were few sales, became more smoothed temporally, when only tracts of ten or more acres were included.

Illinois counties were grouped for the construction of the regional price indices. There are many potential multicounty groupings. One that has worked well historically in agriculture is the regional division into "Type of Farming Areas," shown in the Map. Earlier in Illinois agricultural history this grouping into nine areas was probably easier to see and demonstrate with obvious differences. With farm enlargement, more clearing of timber, and specialization in grain and livestock farming, it is getting more difficult to make the clear distinction among farming areas. Major factors used in the initial classification included soil types, the type and distribution of crops grown, and the type and amount of livestock produced. The types of farming areas are not as well defined now because of the dominance of cash grain production in all areas of Illinois and the general decline in livestock.

The computed Illinois state and regional indices presented in Table 2 were calculated on the base of 100 from actual price averages, weighted by acreage sold, during the period November 1976 through January 1977. This period was selected to give the same base period as the USDA index. This facilitates direct visual comparisons. Average prices for prior and subsequent periods were used to calculate indices for preceding and following periods. The periods used for the sales data correspond to the interstitial periods when the USDA Land Value Indices are reported.

The computed index for the state increased from 66 in 1975 to 162 in 1980, while the USDA Land Value Index increased from 66 to 135. The range in regional index change during the same period was from a high of 49 to 157 in the mixed livestock area (the northwestern area along the Mississippi River) to a low of 54 to 130 in the general farming area (in west central Illinois above the confluence of the Illinois and Mississippi rivers). It is clear that there are substantial differences among areas with respect to the rate of change during different parts of the 1975–1980 period. Even though two regions may end up with the same or nearly the same index number at the end of the period, they may differ greatly in the rate of change at different time periods — one taking off early and leveling out and the other lagging behind with a late surge to get to a similar overall change.

The annual compound appreciation rates over the 1975–1980 period for the type of farming regions ranged from 26 percent in the mixed livestock area of northwestern Illinois to 14 percent in the Chicago area (region 2), the cash grain area (region 4) and the extended area around East St. Louis (region 6). The mixed farming area (region 7) in southeastern Illinois experienced the second highest rate of appreciation during this period with 20.32 percent. Next was the general farming area (region 5) of southwest central Illinois followed closely by the eight most southern Illinois counties (region 9).

The Illinois sale price index is closely correlated with the USDA index for Illinois. The correlation for the full time period which includes 11 observations is 0.96. While the changes in the Illinois farmland sale price index, which are based on actual price changes, and the changes in the USDA index for Illinois are generally in the same direction, the magnitude of change is quite different. The change from the initial time period to the base period is identical for the two indices, but the change from the base period to the ending period is substantially underestimated by the USDA index compared to the actual sale price index. The USDA index increased from 100 to 135 while the actual sale price index increased from 100 to 162 — almost twice as much. A rapid increase in the index was expected since corn and soybean prices, and the resulting farmland income, increased over this period. As evidenced in a comparison of the regional indices, the heavier cash grain areas peaked earlier than the other farming areas.

Implications

The underestimate of 1977–1980 farmland market by the USDA index suggests, first, appraisers using the USDA index for Illinois would have underestimated the time adjustment of comparable properties sold in previous years. With land prices rising

TABLE 2

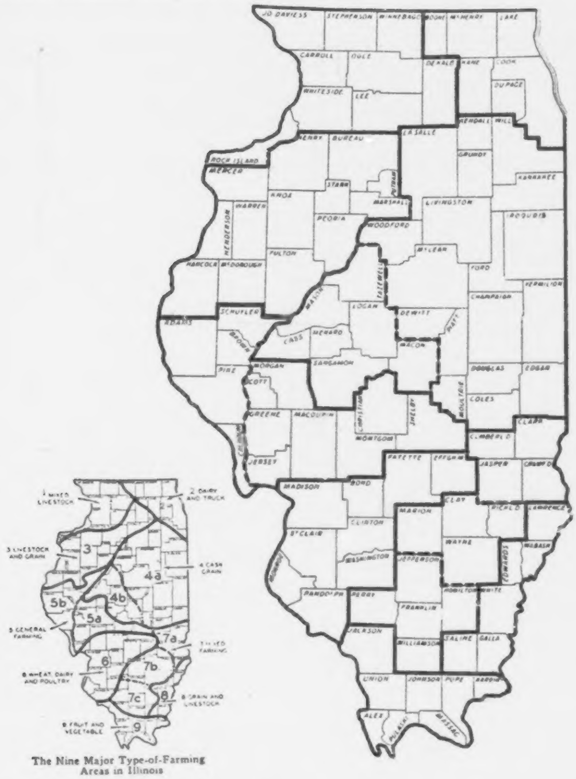
REGIONAL SALES OF FARMLAND IN ILLINOIS: PRICE INDEX (INDEX NOV. 76 - JAN. 77 = 100)

Regions	Nov. 1975	Feb. 1976	Nov. 1976	Feb. 1977	Nov. 1977	Feb. 1978	Nov. 1978	Feb. 1979	Nov. 1979	Feb. 1980	Nov. 1980
1 Mixed Livestock	49	63	71	100	97	141	120	117	140	165	157
2 Dairy	93	63	91	100	117	114	180	164	153	140	181
3 Livestock & Grain	64	74	74	100	129	168	142	123	148	160	151
4 Cash Grain	67	73	81	100	111	125	127	127	128	137	131
5 General Farming	54	51	69	100	95	114	104	98	121	120	130
6 Wheat, Dairy & Poultry	67	69	71	100	103	120	129	125	135	131	131
7 Mixed Farming	68	81	80	100	111	138	141	144	163	173	173
8 Grain & Livestock	84	72	83	100	146	151	155	155	152	204	191
9 Fruit & Vegetables	76	70	92	100	116	113	137	170	160	166	181
Illinois	66	71	79	100	115	162	141	134	150	161	162
Illinois USDA[a]	66	74	93	100	105	111	118	125	130	135	135

[a] The USDA frequently issues revised prices and indices. Those reported here are the most recent revisions for each time period. No index was published by USDA for November 1980. The 135 was obtained by telephone from USDA in December 1980. The index values reported for February 1981 and April 1982 were 143 and 131, respectively.

MAP

TYPE-OF-FARMING AREAS IN ILLINOIS



Source: College of Agriculture and Agricultural Experiment Station, Department of Agricultural Economics, University of Illinois.

during the 1977–1980 period, appraisers likely valued land too low rather than "on" the market or too high. Appraisers, then, likely underestimated market changes, always lagging behind, and being too conservative. Rents based on the USDA index were adjusted upward less between 1977 and 1980 than would have been the case if adjustments were based on the Illinois sale price index. This was clearly beneficial to tenants and detrimental to landlords. Furthermore, heirs inheriting farmland in Illinois during these years likely paid less inheritance and estate tax than they statutorially should have. The government, both state and federal, collected less revenue than should have been collected.

Realtors relying on the USDA index also probably underestimated the movement in the farmland market and probably recommended list prices below the market. This, however, may have enabled them to sell listed properties more easily.

Similar implications for using a state average index rather than a localized index can be drawn. A regional or area index is better for most micro, individual parcel applications. County indices would be even more appropriate. However, in examining the farmland sale price data by county, substantial variation from one year to another was found that cannot be accounted for by a change in the general time trend. A low number of transfers in some years and the heterogeneity of land quality sold from one year to another made county averages unusable for index construction.

Why does a consistent underestimate by the USDA relative to the sale price index occur? First of all, the source of data for the two indices is quite different. The Illinois sale price index is calculated directly from the farmland sales which are a matter of record. It should be noted that these sale prices, however, may not exactly reflect the land values in Illinois. From an analysis of the sale price data on a county by county basis, it appears that a disproportionate amount of higher quality land may have sold during the six years under study, a contention that needs further examination. Clearly if this is true, the average sales price of farmland in Illinois overestimates the average value of Illinois farmland.

The USDA Land Value Index is based on an opinion survey, not actual price data. The opinions tabulated from the survey are then frequently adjusted to reflect the perceptions of USDA personnel conducting the survey and to correlate changes in the index with other related data. The results of an opinion survey depend on many things. Salient among them is how much knowledge the respondents have about the land market, their experience in the market, and the biases held by the respondents because of vested interests. One possibility is that respondents tend to underestimate value as prices are rising; and as prices are falling there is a larger variation in respondent estimates with their actual estimates depending on their own general and vested interests. However, the average estimate may again underestimate value because when pessimism takes over, the extreme is perceived. Because the survey is opinion based, it is difficult to relate the results to the actual sales data that may be available. The USDA Land Value Survey could be improved by, first, improving the sampling procedures and, second, refining the respondent list. Persons more knowledgeable about the farmland market such as realtors and auctioneers could be added to the sample. Individual farmers who dominate the current respondents' list are less likely to have as good a knowledge of the market since they are infrequently directly involved as land market participants. Any one farmer is not likely to buy or sell farmland more than three or four times during his lifetime.

Summary

There is a high demand by many types of users such as brokers, lawyers, revenue and tax agents, landowners, and farmers for accurate indices of farmland values. Up till now there has been one index for the state as a whole. This is the annual index published by the Economic Research Service, USDA. Given the diversity of farmland quality in Illinois, the variation in type of farming, and the general proximity of some areas to major metropolitan areas, it is unrealistic to assume that one index is adequate

(continued on p. 12)

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Does Good Airline Service Improve A City's Business Climate?

JAN K. BRUECKNER

Recent service cutbacks by Ozark Airlines in the central Illinois cities of Champaign-Urbana and Decatur have been a subject of wide-spread concern. Although commuter airlines provide service to Chicago from Champaign-Urbana and Decatur, the aircraft are small and relatively uncomfortable. In addition, the inconvenient location of the O'Hare commuter terminal makes connecting flights harder to reach than before. More important, the loss of direct East Coast service from Champaign-Urbana adds time and inconvenience to a trip from central Illinois to New York or Washington, DC.

While the resulting increased difficulty of air travel is undoubtedly a nuisance to many central Illinois residents, an important question is whether the airline service cutbacks will have a deeper impact on the region's economic climate. For example, local business leaders in Champaign-Urbana worry that the cutbacks will impair attempts to stimulate growth of high technology industries in that city. John Neils, director of the Champaign Chamber of Commerce, notes that three or four existing high technology companies in the area have East Coast clients and that the nature of their business makes frequent and direct client contact essential. Such an observation raises the natural concern that the elimination of direct airline service to the East will impede attempts to nurture new industries in the area, harming the long-term economic outlook.

While the claim that good airline service is an important ingredient of a healthy business climate seems persuasive, a critical observer might wonder whether the claim is in fact valid. Such an individual might ask why a local economy could not prosper in spite of mediocre service. Once this objection is raised, it becomes clear that a more systematic inquiry into the effect of airline service is needed. I recently completed a comprehensive study of this type. The use of statistical techniques allowed me to formulate a reliable answer to the question of whether the quality of airline service indeed affects a city's business climate. In the remainder of this article, I will describe the basic outline of the study and present its conclusions.

The study attempted to uncover a relationship between the growth of employment and the quality of airline service in a national sample of Standard Metropolitan Statistical Areas (SMSAs). The expectation was that employment growth would be higher the better the airline service enjoyed by an SMSA. This expectation reflects the belief that good airline service stimulates the business of existing firms, leading to new hiring, as well as inducing newly locating firms to set up operations in the SMSA, providing an additional boost to employment. Of course, the types of firms directly affected would, like high technology businesses, be active users of the air transport system. The employment generated within these firms would, in turn, stimulate retail trade and other sectors of the local economy.

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Employment growth was measured from the early to the late 1970s in absolute (not percentage) terms for a sample of 75 small SMSAs, all of which were farther than 75 miles from a major airport (Champaign-Urbana-Rantoul and Springfield were the only Illinois SMSAs included in the sample). The quality of SMSA airline service was measured by average yearly passenger departures on noncommuter airlines over the period 1970–1972. The traffic level is a good indicator of service quality since high traffic means frequent flight departures and a variety of destinations, features which are important to the business traveler. Employment growth obviously depends on a variety of SMSA characteristics in addition to airline service. For example, a city whose industrial base is weighted in favor of steel production probably would have shown sluggish employment growth over the 1970s. Clearly, the separate influences of such factors must be measured in order to produce a reliable appraisal of the effect of airline service on employment growth. Various growth factors were accounted for in the study.

First, the effect on employment growth of a high level of employment in the early 1970s was measured. This was necessary because big cities will show bigger absolute employment growth than small cities (other things equal), simply by virtue of their size. As can be seen in the Table, employment growth in the sample was indeed higher the higher the starting level of employment.

TABLE 1

Variable	Effect on Employment Growth
Early 1970s employment	positive
% of employment in manufacturing jobs	negative
% of employment in white collar jobs	zero
% of employment in government jobs	negative
Wage level	negative
Education level	positive
Sunbelt location	weakly positive
Age of population	zero
Nearness of big city	zero
Average airline passenger traffic, 1970-72	weakly positive

As indicated above, the industry composition of employment is also important in determining employment growth. The influence of this factor was captured by controlling for the percentages of SMSA employment in manufacturing, white collar, and government jobs. As can be seen from the Table, growth was lower, other things equal, the higher the proportion of manufacturing jobs, indicating employment stagnation in aging industrial cities. A high proportion of government workers also reduced employment growth, probably reflecting the lack of dynamism of old, established cities with high proportions of federal workers. A high proportion of white collar workers had no effect on employment growth in the sample.

The effect of the innate attractiveness of the SMSA as a location for new firms was captured by controlling for a sunbelt location, the level of wages as measured by per capita income, the level of education of the labor force, the age of the population, and the nearby presence of a large urban center. The Table shows that growth was low in cities with high wage levels, reflecting the attractiveness of low-wage SMSAs to new firms. Similarly, an educated labor force led to high employment growth, testifying to the attractiveness of SMSAs with high-quality workers for newly locating firms. A sunbelt location had only a weakly positive effect on growth. The absence of a stronger impact is probably due to the fact that other variables already capture some of the amenities of the sunbelt (low wages, for example). Finally, the effects on employment growth of an aged population and the nearby presence of a large urban center were both zero.

The last line of the Table contains the information of special interest: the effect of airline service quality (measured by the traffic level) on employment growth. As can be seen, the sample data indicate the presence of a weakly positive effect of quality of service on employment growth. What this means concretely is that if two otherwise identical SMSAs (same wage level, percentage of manufacturing jobs, and so on) are compared, the one with better airline service (the higher traffic level) can be expected to show somewhat higher employment growth. This finding provides some reliable evidence for the validity of the common claim that good airline service improves a city's business climate.

Given that good airline service appears to have a beneficial effect, what steps should localities take to improve service? First, if poor terminal facilities are an impediment to air traffic growth (gate space may be inadequate to accommodate an increase in flights, for example), investment in facilities may be called for. Better terminal facilities could lead to higher airline traffic and a better business climate. If terminal facilities are not an effective constraint (this is probably the case at many small airports), the local government might try to stimulate traffic by subsidizing airline operations via reduced terminal rents. If the local government required the savings to be passed on in the form of lower fares, traffic and, hence, flight frequency might increase, making the city a more attractive location for firms that are active users of the air transport system. Central Illinois cities experiencing service cutbacks might consider the second of these remedies.

(continued from p. 2)

to be financed by new issues of bonds; hence, *PB* is rising because *B* is growing at 10 percent annually. In the indexed world, we assume that bond values are appreciating at the rate of inflation so that *P* is rising at 10 percent and *B* is constant.

From the viewpoint of economics fundamentals, it obviously does not matter whether the money value of debt outstanding occurs through an increase in the price of each IOU, *P*, or the number of IOUs, *B*. But from the viewpoint of the government budgetary process, an increase in *P* is not a deficit — only an increase in *B* is considered a deficit. The net issuance of Treasury IOUs, net of what they are rolling over, is referred to as "the deficit" and given considerable attention by the press. Indexation does not allow the Treasury to get out of any debt obligations since *PB* is increasing by the same amount in both cases. Indexation merely eliminates the inflation premium built into coupon rates and thereby allows bond prices to rise instead of requiring the Treasury to issue new securities to finance the large coupon payments of nonindexed debt.

Since the effect of indexation on the budget deficit comes from the elimination of new issues required to finance interest payments which are large due to an inflation premium, it will not be operative on debt, like T-bills which have no interest payments. An investor's return on T-bills comes only from the discount between the trading policy and the face value. The Treasury's deficit could be reduced only through the indexation of notes and bonds outstanding. At the present time with lower short-term rates, the Treasury has every incentive to refinance in the short-term market. But if short rates back up again, they could refinance in the long-term market with indexed debt and reduce their budgetary costs.

In an earlier issue of this *Review*, William Bryan gave both theoretical and empirical evidence against the usual Wall Street argument that deficits cause high market interest rates. When we consider the implications of indexation, his argument can be extended even further. It is not the large budget deficits which cause high market rates, it is the high rates which contribute to the deficit. It is surely true that large (relative to real growth in the economy) increases in the *real* stock of debt should increase the *real* interest rate, but the Wall Street proposition is about the so-called "deficit" (the dollar value of new issue) not the real stock of debt. The inflation premium incorporated in market rates causes the Treasury to issue billions of new IOUs. With indexed

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debt, creditors would no longer charge an inflationary premium, and the issuance of IOUs needed to cover the premium would be eliminated.

The reason for advocating that the Treasury fund its debt with new indexed securities is not just to debunk a Wall Street myth. Inflation, whether it is constant as in our example or (worse yet) variable as in the real world, does not interact with fixed money contracts without having real effects. The current real effect is the continuing recession which could turn into a depression. In the words of an authority on indexed debt, Stanley Fischer of MIT, "the time for indexation is now."

(continued from p. 9)

for the whole state. Using farmland market sales data, regional arithmetic farmland price indices were developed. These indices more accurately reflect the changes in farmland prices which occur in different parts of Illinois.

The statistical analysis indicates that over the 1975 to 1980 period which was studied, there probably is not enough difference in the change in prices among regions 7, 8, and 9, located in the southeastern part of the state, to warrant a separate index. In the future, these three regions will be combined and one index calculated for the area.

The shortcoming of most indices is the lag between the current time and the time the data used to calculate the index becomes available. That is a shortcoming of the land price indices reported here as well as most others. The solution to this problem is to develop ways to expedite data collection and processing.

ILLINOIS BUSINESS INDEXES

	November 1982	October 1982	September 1982	August 1982	November 1981
Coincident indicator (1969=100)	100.89	100.94	100.76	100.37	130.7
Employment-manufacturing (in thousands)	960.8	970.2	1004.3	1009.1	1156.0
Average weekly hours-manufacturing	39.4	39.2	39.2	39.5	40.0
Weekly earnings-manufacturing	$371.94	$368.09	$370.83	$371.70	$367.60
Help wanted advertising-Chicago (1967=100)[a]	40	41	38	41	43
Help wanted advertising-St. Louis (1967=100)[a]	31	35	32	35	42
Ordinary life insurance sales (in millions)	$2,372	$2,302	$2,106	$2,052	$1,869
Retail sales (in millions)[b]	$4,590	$4,551	$4,323	$4,413	$4,562
Coal production (in thousands)	4,752	5,111	5,587	5,745	5,124
Petroleum production (in thousands)	2,460	2,554	2,512	2,528	2,090
Vendor performance, seasonally adjusted (percent)	41.2	44.3	42.5	42.3	34.7
Building permits (in thousands)					
Residential housing units	1.58	2.16	3.24	1.37	.98
Value of residential housing	$76,509	$95,415	$111,131	$63,456	$49,026
Value of nonresidential construction					
Industrial buildings	$7,991	$13,591	$11,610	$20,573	$19,035
Office, banks and professional buildings	$25,721	$29,654	$19,916	$33,687	$29,125
Stores and other mercantile buildings	$8,301	$20,104	$11,035	$10,511	$11,427
Other	$14,318	$36,455	$19,785	$27,959	$20,409
Consumer price index					
North Central US[c]	-	160.4	-	160.5	150.3[d]
North Central/population more than 1,250,000[c]	-	163.1	-	162.2	152.6[d]
North Central/population 385,000 to 1,250,000[c]	-	158.9	-	157.0	149.2[d]
North Central/population 75,000 to 385,000[c]	-	155.9	-	158.9	147.4[d]
North Central/population less than 75,000[c]	-	159.0	-	160.2	147.6[d]
Chicago (1967=100)	294.3	294.4	294.0	293.2	277.0
St. Louis (1967=100)	290.0	-	294.1	-	273.8
Prices received by farmer[e]	101	98	105	110	109
	1982:II	1982:I	1981:IV	1981:III	1981:II
Personal income (in millions)	$138,355	$136,518	$136,636	$134,410	$130,762

[a] The Conference Board, Help Wanted Advertising, December 1982

[b] Latest month projected by BEBR

[c] December 1977=100

[d] December 1981

[e] 1976-80=100

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Leading Indicators: The National and Illinois Indexes

Susan Fay

Although the monthly status of the National Index of Leading Indicators is generally hailed as being of great import and reports of its current value are eagerly awaited each month, it remains one of the least understood of the regularly reported economic statistics. Much of the misunderstanding results from use of the word "leading" since it conveys the idea that changes in the composite index of leading indicators will inevitably precede changes in the business cycle. This article will describe the composition of the leading index and explain exactly how its component series lead movements in the overall business cycle. A description of the Illinois Leading Index, recently revised by the Bureau of Economic and Business Research (BEBR), will follow.

The National Bureau of Economic Analysis (BEA) publishes 47 series of economic data that lead movements in the business cycle. A "lead" must be greater than three months long. Series which lead or lag economic activity by three months or less are classified as being coincident to the level of economic activity. In a 1977 review of the justification and construction of the composite indexes (Business Conditions Digest, *Handbook of Cyclical Indicators*), the average lead of the leading index was 8.2 months, with the leads of its 12 component series ranging from 5 1/2 to almost 11 months. The series classified as being leaders represent a wide range of subgroups of economic activity. These general areas are employment and unemployment; production and income; consumption, trade, orders and deliveries; fixed capital investment; inventories and inventory investment; prices, costs, and profits; and money and credit. Components for the leading index are taken from all of the subgroups with the exception of production and income, due to the coincident nature of its series.

Given the existence of so many data series that lead movements in the business cycle, one may reasonably ask why it is necessay to form an index at all. Combining individual series into an index prevents movements in one series (which may be due to measurement errors) from dominating movements in the index as a whole. That is, the variability of the index will be less than that of its components. Also, since no definitive theory of the business cycle has been developed, there exists no single indicator that can be related to each and every cycle. A major goal of BEA researchers is, thus, to single out those series that will be useful in leading all business cycles.

What criteria were used by the BEA researchers in the selection of 12 series from a possible 47? The six criteria used to choose the 12 "best series" were: economic significance; statistical adequacy; consistency of timing of lead length; conformity to historical business cycles; ability to distinguish cyclical movements from irregular, short-term movements; and frequency and availability of data. One can see that to a large extent, the choice of which series to include in the index is a function of factors that are not directly related to the role that economic theory suggests. Thus a major problem with constructing such an index is that data-related considerations must play a major role in the selection of which series to include in the composite index. This can lead to exclusion of series that are relevant on theoretical grounds but cannot be measured with accuracy or with frequency and to inclusion of variables that are easily measurable but have little theoretical justification.

The specific series included in the index are as follows: (1) average weekly hours of manufacturing workers; (2) average weekly initial claims for unemployment insurance; (3) the real value of manufacturers' new orders for consumer goods and materials; (4) the index of net business formation; (5) the index of 500 common stock prices; (6) contracts and orders for plants and equipment in 1972 dollars; (7) the index of new private housing units authorized by

Financial Futures and Options / *Page 4*

Real Estate Developments / *Page 6*

local building permits, (8) vendor performance, which is the percent of companies receiving slower deliveries; (9) the net change in inventories on hand and on order, in 1972 dollars; (10) the change in "sensitive" materials prices; (11) the change in total consumer and business credit outstanding; and (12) the real money supply measure, M2.

It is posited that employers may vary hours per worker more easily than the number of workers employed. Hence, an increase in average weekly hours will precede an actual increase in employment. The manufacturing sector is singled out due to its sensitivity to changes in aggregate demand. Closely related to this is the second series listed above. Changes in average weekly initial claims for unemployment insurance will precede changes in the actual unemployment rate because of its responsiveness to short-run changes in employment needs that precede the more permanent, longer-run changes. Series 3, 6, and 7 above reflect early changes in components that directly affect the level of aggregate demand for goods and services. Measurement of the real dollar value of new contracts, for example, is useful because the contracts will presumably be translated into production and, hence, employment. Series 4, the index of net business formation, gives a clue as to the future output and employment that will arise from businesses formed today. The index of 500 common stock prices has proven to be one of the most reliable leading indicators—its average lead of seven months (measured in 1977), exhibited the least variability of all the components of the index. Perhaps this can best be explained on expectational grounds. Stock prices will be bid up if the expected profits in the relevant industries are high. Profits are increasing during expansionary periods and vice versa. Because those who participate in the stock market generally have superior information about business prospects, it is not surprising that significant changes in the stock index should be relatively reliable indicators of future employment changes, although there is no *causal* relationship between aggregate demand and the stock index.

The vendor performance measure, published by the Purchasing Management Association of Chicago, measures the percent of vendors receiving slower deliveries. It is posited that an increase in such a measure indicates that an expansionary period is imminent because companies with backlogs of orders must necessarily deliver them more slowly. Inventory adjustments also lead economic activity. An accumulation of inventories indicates that goods are not being sold; fewer orders will be placed and there will eventually be a decline in economic activity and, thus, employment. The prices of raw materials are included because decreased demand for such materials (and, hence, lower prices) will precede decreased demand for finished products and a decline in employment. This index has been changed recently to exclude petroleum and natural gas prices. This omission has served to further bolster recent readings of the index. Prior to last month, the change in total assets was used instead of the change in consumer and business credit outstanding. This recent change reflects the usefulness of using credit outstanding as a measure of long-run confidence in the economy. Agents will not lock themselves into payments if their confidence in the economy is low. Finally, the level of the money supply is included due to its at least *short-run* significance in the determination of the level of the interest rate, purchasing power, and, hence, aggregate demand.

Is the index accurate? The index has been constructed back to 1948 and has led the seven peaks in the business cycle and the seven troughs that have occurred since then. There is, however, significant variation in lead time and, in particular, an asymmetry between lead time for expansions and lead time for contractions. Since 1948, the average lead time for recessions has been nearly one year while that for expansions has been exactly three months. For a peak in the business cycle, "lead time" is the difference between the time the index reaches its cyclical high and the time the business cycle attains its cyclical high. An analogous definition exists for the lead time for a trough in the business cycle. The averages given above suggest that perhaps the index is more reliable in the prediction of business upswings than contractions, due to the longer lead time associated with the latter and its greater variablility. There are no explanations given for this asymmetry, but one may make a few conjectures. It is reasonable to assert that the losses associated with incorrect anticipation of an upturn (for example, placing new orders for inventory) exceed the losses associated with incorrectly anticipating a downturn. Since a number of the components of the leading index are based on expectations of economic agents, it is, perhaps, not too surprising that the index would show significant increase *just prior* to an expansion, rather than one year before one occurred.

The leading index has recently posted its largest gain in over 30 years. However, its construction has not been free of criticism. Two factors that may account for its increase are the unusually warm winter this year and the recent institutional change in financial markets. New types of accounts that allow payment of market interest rates have been created and

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have caused the amount of money in circulation, M2, to increase. Such a shift is, to some extent, a shift away from other interest-bearing accounts that are not included in M2. Milder weather this winter has caused fewer layoffs due to inability to work in such industries as construction and has caused average weekly hours of employment to be higher than during the average winter.

Putting together a leading index for the state of Illinois is greatly hampered for two reasons. The first is a dearth of currently available statistics published on a statewide basis. Another problem concerns whether or not the economic activity of the state of Illinois is entirely separable from that of the nation as a whole. For example, although it would be desirable to construct an Illinois stock index to include in the leading index, it would be extremely difficult to single out firms that were wholly owned and operated by Illinois agents. It is also not possible to fully capture employment changes by Illinois residents due to the existence of interstate commuting. In spite of these obstacles, the Bureau of Economic and Business Research has constructed an index consisting of four leading series that are available for the state on a monthly basis. These series are average weekly hours in manufacturing; vendor performance (this is for Chicago area firms and is the same as the figure used in the national index); building permits for new private housing; and average weekly initial claims for unemployment insurance. This index is essentially the same as has been used by BEBR in the past, with the substitution of initial claims for unemployment insurance for the layoff rate in manufacturing. The latter series was discontinued in 1981. The Illinois Leading Index is constructed so as to predict changes in the coincident index, which is composed of four series which coincide with the general level of economic activity within the state. In the past, the leading index has produced mixed results. The leading index actually *lagged* the August 1971 trough in Illinois activity by one month and led the May 1974 and June 1979 peaks by 15 months and 25 months, respectively. Given such variability, it is questionable whether such an index is appropriate for the state of Illinois. Because Illinois's manufacturing-oriented economy is more susceptible to recession than is that of the nation as a whole, the concept of a leading index is useful. However, given the serious limitations on data, the index itself must await further refinement before it can be reliable.

ILLINOIS BUSINESS INDEXES

	January 1983	December 1982	November 1982	October 1982	January 1982
Coincident indicator (1969=100)	101.69	102.89	100.89	100.94	138.4
Employment-manufacturing (in thousands)	939.9	949.5	960.8	970.2	1122.4
Average weekly hours-manufacturing	39.4	39.8	39.4	39.2	38.6
Weekly earnings-manufacturing	$372.33	$376.91	$371.94	$368.09	$357.44
Help wanted advertising-Chicago (1967=100)[a]	39	45	40	41	56
Help wanted advertising-St. Louis (1967=100)[a]	37	33	31	35	46
Ordinary life insurance sales (in millions)[b]	n.a.	$2,971	$2,372	$2,302	n.a.
Retail sales (in millions)	n.a.	$5,569	$4,590	$4,551	$3,661
Coal production (in thousands)	5,188	4,287	4,752	5,111	5,229
Petroleum production (in thousands)	2,400	2,416	2,460	2,554	2,140
Vendor performance[c]	41	38	41.2	44.3	32.5
Building permits (in thousands)					
Residential housing units	.702	1.70	1.58	2.16	.32
Value of residential housing	$36,222	$66,778	$76,509	$95,415	$13,346
Value of nonresidential construction					
Industrial buildings	$8,634	$5,093	$7,991	$13,591	$14,769
Office, banks and professional buildings	$16,520	$33,784	$25,721	$29,654	$18,449
Stores and other mercantile buildings	$4,143	$5,954	$8,301	$20,104	$3,446
Other	$52,053	$53,789	$14,318	$36,455	$12,669
Consumer price index					
North Central US[e]	-	159.7	-	160.4	152.1[d]
North Central/population more than 1,250,000[e]	-	162.0	-	163.1	153.6[d]
North Central/population 385,000 to 1,250,000[e]	-	159.3	-	158.9	151.9[d]
North Central/population 75,000 to 385,000[e]	-	156.2	-	155.9	149.1[d]
North Central/population less than 75,000[e]	-	156.8	-	159.0	151.0[d]
Chicago (1967=100)	294.0	293.1	294.3	294.4	275.4
St. Louis (1967=100)	291.1	-	290.0	-	278.4
Prices received by farmers (1976-80=100)	100	104	101	98	105[f]
	1982:III	1982:II	1982:I	1981:IV	1981:III
Personal income (in millions)	$140,832	$138,355	$136,518	$136,636	$135,946

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[a] The Conference Board, Help Wanted Advertising, January 1983

[b] Latest month unavailable due to discontinuation of series

[c] Seasonally unadjusted, beginning in December, 1982

[d] February 1982

[e] December 1977=100

[f] 1977-81=100

Financial Futures and Options: A Clarification

Timothy J. Gallagher

In the October 1982 issue of the *Illinois Business Review*, Joan Junkus presented an informative article on the increasingly popular financial futures and options. In "Chicago: Center for New Financial Instruments," Ms. Junkus describes the new financial futures and options on futures now being traded at the Board of Trade and Mercantile Exchange in Chicago. I would like to clarify a few points made in that article.

The definitions of futures and options given in the original article are exactly correct. To review, a future is a promise to buy (go long) or sell (go short) a specified amount of a commodity, at a currently determined price, for delivery at a certain future date. An option (specifically a call option) gives the holder the right to buy a certain amount of a commodity (a certain common stock in this case) at a specified price during a certain period of time. This purchase is made from the writer (seller) of the option if the buyer chooses to exercise his option.

Futures for financial commodities, such as T-Bills, certificates of deposit, and GNMA securities are fairly recent phenomena. Options on financial futures are even newer. Ms. Junkus explained well the basics of how a person or company with a future commitment to lend or borrow could reduce risk by hedging in the futures market. The person needing to borrow a large amount of money in six months could sell short the appropriate financial future. If interest rates rise in the next six months, the increased cost of borrowing could be offset (in large measure) by the profit made on the futures transaction. (As interest rates rose the price on the financial commodity would fall, and the short seller would profit on the futures transaction.) If interest rates fall in the next six months, the loss on the futures contract would be largely offset by the reduced cost of borrowing. The bank with a commitment to lend could similarly go long the appropriate financial future to hedge its interest-rate risk.

The speculator does not have a position (for example, a commitment to lend or borrow) for which he is seeking to hedge a risk. The speculator is trying to predict the price movement of the futures contract and to profit. If he correctly predicts that corn, wheat, hogs, or T-Bills will rise in price, he will profit from a long futures position. He will lose if prices fall while he is long. Short-position speculators profit on price declines or lose on price advances.

Ms. Junkus points out that the futures speculator can lose (or make) many times the initial amount of money paid. This money is the margin for his position (a good faith bond). The margin is usually 5 to 10 percent of the full value of the futures contract. If the price moves against you (up when you are short or down when you are long) you could lose all your margin and be liable for a large amount of additional money.

This cannot happen to the option holder. The option holder can choose to exercise or not to exercise the option. The worst case would be owning a worthless option at expiration time. You would lose whatever you paid for the option but no more.

This downside risk protection makes options more attractive to some people than futures. Ms. Junkus states in her October 1982 article, "The investor's downside risk of loss is diminished with an option without lessening the upside potential." Alas, if only this were true! The same upside potential with less downside potential would be very attractive to everyone. This is why it cannot be so. There ain't no such thing as a free lunch.

There is greater upside potential in the typical futures position than in the typical option position. This is what we should expect, given the greater downside potential of futures. The option buyer must pay a premium which the futures buyer (or seller) does not have to pay.

For example, suppose Bill thinks that Dummy Corporation common stock is underpriced at $30 per share and that the price will rise significantly in the next few months. He might buy a call option which allows him to buy 100 shares of Dummy Corporation stock at $25 per share (the strike price) any time during the next two months. This option has an intrinsic value of $5 per share (30-25) or $500 for the 100-share option. The actual market price of the option, however, will be more than $500. The difference between the intrinsic value of the option and its market price is the premium. The further away the expiration date and the more optimistic the market is about the stock's prospects, the greater this premium.

Let us assume that Bill buys the above option for $700 and that the option expires two months from today. If Bill keeps that option until just before it expires, Dummy Corporation common stock must rise in price from $30 to $32 for him to break even, ignoring commissions. This is because the premium decreases to $0 as the time remaining in the life of the option approaches zero. Just before expiration, this option would be worth $700 (($32-$25) x 100 shares), the price Bill paid for it, if Dummy Corporation common stock rises from $30 to $32. Bill has just covered the $200 premium he paid.

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The futures trader has no premium to pay. Every favorable point movement in the price of future wheat, hogs, or T-Bills is a point earned by the trader. This, in part, is why futures traders generally have more upside potential than participants in the options market. We should also consider the person who sold the above call option to Bill for $700 (the option writer). Let us call him Charley. The best Charley could hope for is for Dummy Corporation common stock to fall from $30 to $25 to less after the option is sold. Charley would make a profit of $700. Bill has lost $700 to Charley because the option has a $0 intrinsic value at expiration time, and Bill would not exercise the option. Charley could never make more than $700 as long as the option is held until the expiration time. His upside potential is obviously limited. The $200 premium Charley got when he sold the option is the price he required for limiting Bill's downside risk. Note that Charley could lose many times the $700 he received for the option if Dummy Corporation stock increases significantly in price.

The above analysis assumes that the option will be held until expiration time. In fact, American options can be exercised by the option holder at any time during the life of the option. This means that the option holder can possibly profit from an increase in the premium. This would mean, however, that the option is bucking the tendency for the premium to decrease as time passes. It is possible that increased market optimism for the prospects of the underlying stock could overpower the time factor. When we also consider the possibility of greater market pessimism and the effects of time passage when market expectations are stable, we expect the premium to shrink as time passes.

There is a way the option buyer can get considerable upside potential. A deep "out of the money" option can be purchased. In the case of a call option this would be an option with a strike price significantly above the current market price of the stock. There is no intrinsic value of such an option, and the price paid for it must be attributed entirely to the speculative time premium.

For example, as I write this there is a Warner Communications call option available with a strike price of $60 and an expiration date six months hence. The market price of Warner Communications common stock is $31, and the option is selling for 3/8. If Warner stock goes from $31 to $70 before the option expires, the option will have an intrinsic value of $10 per share. The rate of return on an investment of 3/8 is obviously enormous. The potential for very high returns is there, but what about the probability?

With the above option Warner Communications stock must almost double in six months to prevent the option buyer from suffering a 100-percent loss. Most people would consider the probability of any gain to be very small in this case. This is the position, however, the option buyer has to place himself in to have a chance at very high returns.

The futures trader has high upside potential on just about any position. The margin is low relative to the amount of the commodity controlled, so there is a lot of built-in leverage. As the futures price of the commodity moves, the trader's gains (losses) are realized. There is no premium to overcome before a profit can be made. Every favorable price movement in the futures price of the commodity represents a gain to the futures trader. For the option buyer a favorable price movement in the price of the common stock is often offset by an unfavorable movement in the premium.

The October 1982 *Illinois Business Review* mentioned several of the new and proposed options available. Options on financial instruments other than common stock have been around for several years now. Examples are Treasury bills, notes and bonds, GNMAs and CDs. Options on S&P 500 futures contracts are newer, and more options on futures are proposed. All options have the same limitations on their upside potential as the stock options described above. The premium must be overcome.

I have concentrated on the disadvantages of the options relative to futures. Ms. Junkus explained well the big advantage options have. You cannot lose more than the initial investment made in an option. The downside potential is limited to what you initially pay.

With a futures position your loss could be many times the initial money (margin) you pay. For example you might buy (go long) December hogs at 49.50 (cents per pound). You now control 30,000 pounds of hogs worth $14,850. The margin you must pay when you establish the long position is $800. This will vary among brokers. The exchange sets minimum margin requirements. Some brokerage firms have higher requirements. The worst thing that could happen to you in the above example is that the price of December hogs could drop from 49.50 to 0. You would lose your initial $800 and $14,050 more. This is obviously a theoretical extreme. It does illustrate, however, a futures trader's downside potential. The downside risk is not unlimited, but it is substantial. An unhedged short position has unlimited loss potential since there is no limit as to how high the future price can go.

Futures traders accept great downside potential for a chance at great profits. Option buyers generally have less downside potential and opportunities that are not so great. The option buyer can only get high upside potential by accepting a very low probability that the very high return will be realized.

For some people, options offer adequate profit potential while holding down risk. The more aggressive trader may be willing to accept the generally greater risk to get the generally greater rates of return possible in futures. We have not found the free lunch yet, but we will keep looking.

Real Estate Developments

The Effect of Size and Location of Tax-Increment Financing Districts on Property Tax Revenues

T. John Kim and Patricia Donahoe-Petrie

Tax-increment financing (TIF), a municipal financing tool to stimulate redevelopment, is being used more and more frequently by communities across the United States. TIF has been available to generate revenue to secure obligations since 1952 when agencies in California were given authorization by state constitutional amendment. It was not, however, until the 1970s that this form of incentive became popular in other states. Now 26 states have TIF statutes, and 24 of these have been found legally valid. Since 1980, when the Illinois Supreme Court declared the 1977 Real Property Tax Increment Allocation Redevelopment Act legal, at least a dozen TIF districts have been established or are in the process of being established throughout the state.

The essence of the act is that a TIF district captures the incremental increase in property tax revenues for new or renovated development to pay for the investment expended for development. Once the district has been designated and the boundaries drawn by a local government as a TIF district, the local tax-assessing authority certifies the current property tax base of that area. All future tax increases above this base (frozen tax base) which are levied will be assigned to the development authority to repay any obligations such as bonds that were issued for improvements.

The advantages, disadvantages, and other points to consider on whether TIF should be a community's choice as a redevelopment tool have all been much discussed. But little, if any, discussion has dealt with the impact of size and location of TIF districts on the community at large, particularly on the municipality's future property tax revenues.

Most frequently cited as advantages of TIF are the possible provision of additional jobs, allowing local governments to be the developer, that it does not usually add to the municipal debt, that it allows concentrated financing of an area for redevelopment. Disadvantages include that it may cause hidden costs to other taxing districts, that it may hamper other redevelopment incentives, that TIF bonds may cost more than other bonds, that tax-increment financing might not materialize, and that if general obligation bonds (GOB) were issued, the city, not the district, is responsible for the repayment.

This article presents a brief summary of research conducted by the authors during the summer of 1982 analyzing the impact of TIF districts on property tax revenues in five Illinois communities.

The purpose of the project, "TIF and Its Effects on Property Tax Revenues and Real Estate Values," was to analyze the impact of tax-increment financing on property tax revenues using empirical data from cities in Illinois that have implemented TIF since 1977, when the State of Illinois enacted the Real Property Tax Increment Allocation Redevelopment Act. Two specific issues were studied: the benefits accruing to a local community measured by changes in property tax revenues in relation to the location and size of TIF; and the spill-over effect of TIF on real estate values in neighborhoods contiguous to the district.

There are two possible impacts of size and location of TIF on a city's property tax revenue during the frozen-tax-base period (23 years maximum in Illinois): either the city will gain in its property tax revenues by implementing TIF; or TIF will cause a loss of revenue for the city.

If the rate at which the tax base would be declining without the TIF option being exercised is known and if it would be declining faster than the rate at which the community discounts the future, then the community would experience the gain in the property tax revenues by implementing TIF. This is because the frozen tax base under the TIF option (Curve A-b in Chart 1) will always be above the would-be tax base if TIF is not implemented (Curve A-a in Chart 1) during the project period. This results in a net increase in the property tax base. It is important to note that any increment in the property value in the TIF district above the frozen tax base (the difference between Curve A-c and A-b in Chart 1) does not play any role in affecting the tax revenues since any such increment will be assigned and used for the development of the TIF district.

If the property values in the TIF district have been, and are foreseen to be, declining slower than the discount rate, then the municipality will lose property tax revenues by implementing TIF. This is because the municipality actually imposes a lower tax base by introducing a frozen tax base (Curve A-b in Chart 2) which is lower than it would be without TIF (Curve A-a in Chart 2).

T. John Kim and Patricia Donahoe-Petrie are, respectively, associate professor of urban and regional planning and Ph.D candidate in Administration, Higher and Continuing Educaation, at the University of Illinois at Urbana-Champaign. The study reported was carried out under the sponsorship of the Office of Real Estate Research, University of Illinois at Urbana-Champaign, by the authors along with C. W. Forrest, professor of urban and regional planning, and K. A. Przypyszny.

Chart 1

Case in Which Property Tax Revenues Would be Increased Due to TIF

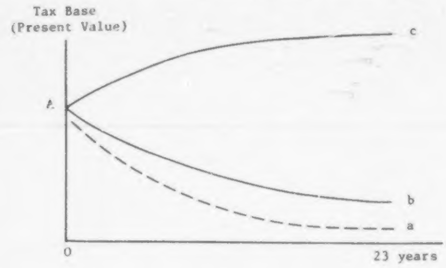
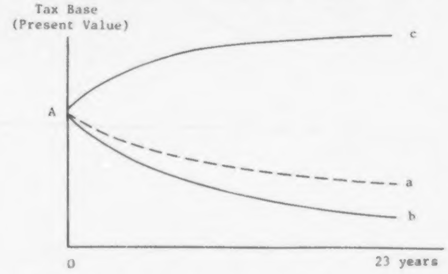


Chart 2

Case in Which Property Tax Revenues Would be Decreased Due to TIF



Curve A-a: the would-be property tax base without TIF option Curve A-b: frozen tax base with TIF option depreciating at discount rate Curve A-c: increased property values with TIF option

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In order to identify trends in property tax base changes in TIF districts, equalized-assessed-valuation (EAV) data were collected from the following five cities in Illinois: Champaign; East Peoria; Highland Park; Rockford; and Urbana. All but Champaign implemented TIF in 1979. The City of Champaign passed a TIF ordinance in December 1981, using 1980 as the assessed evaluation base year.

Equalized-assessed-valuation data for a 100-percent sample of the parcels within the TIF district were collected, with the exception of Highland Park where a one-third sample of parcels was collected. Using the consumer price index, all EAV data were converted to 1979 constant dollars except for Champaign, which is in 1980 constant dollars.

Using time series EAV data, the annual rate of change in EAV for the TIF district for each city was estimated. All the results, except for Highland Park, are statistically significant and show that the annual rate of changes in tax base differs widely among cities. The EAV for the TIF district in East Peoria has been declining at an annual rate of 14.3 percent. In Champaign, Rockford, Urbana, and Highland Park, the EAV has been declining at 11.2 percent, 10.6 percent, 6.1 percent, and 2.9 percent, respectively.

Assuming the property values in the TIF district will be declining in the future at the same rate as in the past, and if the annual rate at which the community discounts the future is 12 percent, it is not difficult to conclude that East Peoria is the only city among the five that will generate net increased property tax revenues by implementing TIF. If the rate is 10 percent, then both Champaign and Rockford would also have increased their property tax revenues due to TIF.

The best data that can be used for analyzing the impact of TIF on neighboring property values would be market value of neighboring properties that show changes before and after TIF implementation. Such data, however, are not available and are extremely difficult to estimate. Instead, EAV data were collected, and it was assumed that EAV approximates market values. For each of the five cities, 10 blocks (or at least 100 parcels) were chosen at random from an area one-half mile outside of the TIF district boundaries. Then tax data were collected from the appropriate county office. Equalized-assessed-valuation data, including all county and township multipliers, collected for each parcel were converted to 1979 constant dollars. The fact that only two years have passed since the adoption of TIF in these cities poses a problem in interpreting these data because of the lack of time-series data. With this limitation, it would be too presumptuous to identify the impact of TIF on values of the property located adjacent to TIF districts as yet. The data, however, imply that there are no significant changes in the EAV of properties located adjacent to TIF districts in Illinois for the first two years of the TIF-implementation period. This implication may have also stemmed from the possibility that cities in question may not have updated EAV during this period.

Two implications can be drawn from the study results:

(1) The study presents an easy and quick method that can be used in evaluating the impact of a proposed TIF on the city's property tax revenues, which, in turn, affect the general welfare of the community at large. By comparing the two rates, the expected annual rate of change of the concerned properties without the TIF option and the future discount rate on the frozen base with the TIF option, one can find immediately whether or not the proposed TIF would increase or decrease the city's future property tax revenues.

(2) The study suggests a tool that can be used for delineating an appropriate size and location of the TIF district that would not decrease the city's future property tax revenues. An appropriate size and location of the TIF district can be found where the expected rates of decline in property values are higher than the community's future discount rate. Combining these properties, presumably in a continuous manner for a practical reason, but excluding those properties, as much as possible, for which the expected rate of decline in property value is smaller than the discount rate, an appropriate TIF district could be recommended.

(continued on p. 11)

Property Value Maximization: A Socially Suboptimal Rule for Local Fiscal Policy

Peter F. Colwell and Surinder S. Gujral

The total land value in a community is generally a poor indicator of the efficiency of the local government spending and taxation policy. However, Jan K. Brueckner presents a different view of the relationship between property values and the efficiency of local government fiscal policy. In the December 1982 issue of the *Illinois Business Review*, he contends that if local governments select their level of spending (and taxes) so that local property values are maximized, community benefits will tend to be at a maximum. In other words, the fiscal policy of local governments will be efficient. Since the "property-value-maximization rule" (hereafter, Brueckner's rule), will be of interest to local public officials, real estate analysts, and civic organizations concerned with the efficient management of local government, it is useful to present an alternative view. It is our contention that while Brueckner's rule may indeed be efficient under some very exceptional conditions, it is not generally efficient.

Some Economic Principles

In order to demonstrate that Brueckner's rule need not be efficient and to suggest that the exceptions to its efficiency include a broad range of possibilities, we will use a numerical example that is based upon the demand curve for land. We will begin by identifying the allocation of land that produces maximum community benefits for a given fiscal policy. Thereafter, we will show that a change in fiscal policy that results in an increase in land value can also result in a net decrease in community benefits.

For simplicity, we will consider a community with 2,640 acres of total land of which 2,048 acres are available for private uses. The local government controls the quantities of land allocated to residential uses and commerical uses through a zoning ordinance as well as through fiscal policy measures, that is, the levels of taxes and spending.

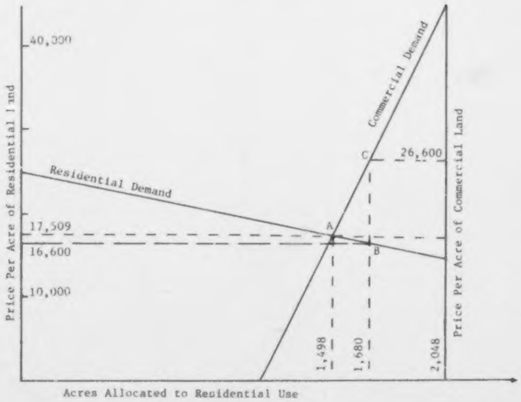
The quantity of land demanded for each of the two uses depends upon the price of land, the benefits and cost conferred on the land use by the fiscal policy, and the characteristics of land, including location. By holding fiscal policy and land characteristics constant, we can draw a demand curve such as the residential demand curve shown in Chart 1. This demand curve shows that users of residential land will be willing and able to acquire additional quantities of land at lower prices, other things being the same, for example, no change in the spending and tax posture of the local government. The demand curve may also be interpreted to mean that as greater quantities of land are allocated to residential use, the marginal or additional users of this land will be willing and able to pay progressively less.

The demand curve for commercial land in Chart 1 is simply the mirror image of a conventional demand curve. The reason for using the mirror image is that the total land in the community will be allocated between the two competing uses. By selecting any allocation, the prices in the two markets are observed simply by looking at the height of the two demand curves at that particular allocation. Just as the quantity of land allocated to residential uses reads from left to right in Chart 1, the quantity allocated to commercial uses reads from right to left.

The price of land does not fully reflect the willingness of the users of land to pay for its use. The users' willingness to pay over and above what they actually pay represents consumer surplus. This surplus is measured by the triangle formed under the demand curve above the market price. In measuring the benefits to users of land, we need to sum the land value and the consumer surplus. Graphically, land value is the area below price, whereas total benefits are found as the total area under the demand curve. Unless the areas under the demand curves are maximized, community benefits will not be maximized.

Chart 1

The Allocation of Land with a Stable Fiscal Policy



The quantity of commercial land demanded equals 900 acres minus .02 times the price of land. The quantity of residential land demands equals 5,000 acres minus .2 times the price of land. Total land allocated is 2,048 acres. Economists will recognize that land value is maximized where the marginal values in the two uses are equated, whereas community benefits are maximized where the average values or prices are equated.

The authors are respectively, professor of finance at the University of Illinois at Urbana-Champaign and lecturer in economics at Howard University.

The Allocation of Land

An allocation of land that maximizes land value will not, in general, cause community benefits to be maximmized (still assuming that fiscal policy is held constant). The land should be allocated so as to equate prices across the land use zones (holding land characteristics constant). This equal price rule will yield the greatest sum of land value and consumer surplus. On the basis of the demand curves shown in Chart 1, the optimal allocation of land to residential and commercial uses is 1,498 acres and 550 acres, respectively. At this allocation, the price in both land use zones is $17,509 per acre. This price produces a total land value of $35,858,432.

2,048 acres x $17,509/acre = $35,858,432

Alternatively, total land value would be maximized by allocating 1,680 acres of land for residential use at the price of $16,600 and 368 acres for commercial use at the price of $26,600. The maximum land value is $37,676,800.

1,680 acres x $16,600/acre	= $27,888,000
368 acres x $26,600/acre	= 9,788,800
TOTAL	= $37,676,800

The loss of community benefits from maximizing land value ($910,000) is graphically represented by the triangular area labeled ABC in Chart 1. This is the extent to which the area under the demand curve falls short of what it would be if prices were equal in the two zones.

The Failure of Brueckner's Rule

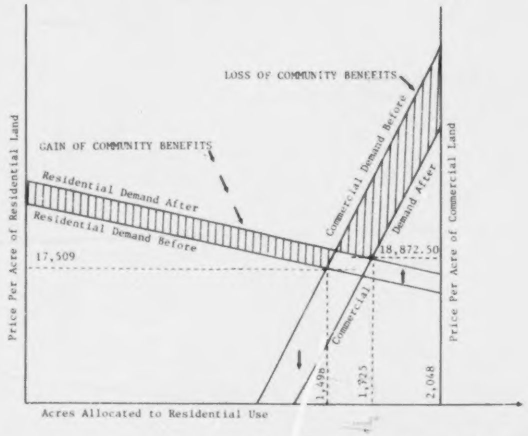
Changes in fiscal policy frequently confer net benefits on one land use and net costs on another. This situation leads to the possibility that total community benefits and land value move in opposite directions. Suppose that a change in taxes and public spending brings about changes in the demand curves as shown in Chart 2. The illustrated changes might be the result of an increase in spending that primarily benefits residential uses, while the associated tax increase is borne by both land uses according to their assessed values. The optimal allocation is now changed to 1,725.5 acres for the residential and 322.5 acres for the commercial uses of land. The single price of land that results from this allocation is $18,872.50 per acre. This price produces an aggregate land value of $38,650,880, an increase of $2,792,448 from the previous case.

AFTER: 2,048 acres x $18,872.50/acre	= $38,650,880
BEFORE: 2,048 acres x $17,509/acre	= 35,858,432
INCREASE	= $ 2,792,448

However, the gain in benefits accruing to the users of residential land of $3,801,875 is more than offset by the loss of $4,132,500 accruing to the users of commercial land (see the shaded areas in Chart 2). Thus, total community benefits decline by $330,062 even though there has been an increase in the total land value. The failure of Brueckner's rule can be made even more severe by larger downward shifts in the demand curve for the commercial land over quite a substantial range.

Chart 2

Gains in Land Value and Net Loss of Community Benefits Due to a Change in Fiscal Policy



The quantity of commercial land demanded is reduced by the change in fiscal policy to 700 acres minus .02 times the price of land. The quantity of residential land demanded is increased by the fiscal policy change to 5,500 acres minus .2 times the price of land.

The Success of Brueckner's Rule

The conditions under which land value is an indicator of the efficiency of local fiscal policy are unusual. Nevertheless, it should be recognized that Brueckner's rule does work in two contexts. The first of these is the more realistic and the less certain of the two. It requires rigidity in the allocation of land. The second requires that changes in local fiscal policy result in the same direction of effects on all land uses.

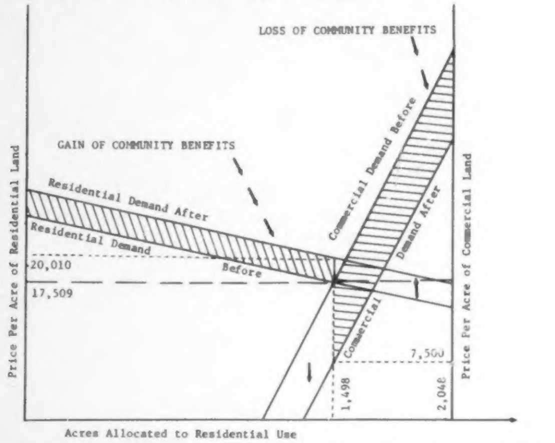
The allocation of land may be rigid for two reasons. (1) Short-run analysis does not allow sufficient time for land to change uses. This is the case analyzed in Brueckner's research. (2) A rigid zoning policy may ensure that land does not change uses in the long run. Brueckner does not invoke the rigid zoning rationale.

Given that the allocation of land is fixed, for whatever reason, Brueckner's rule is an acceptable indicator of the efficiency of local fiscal policy. In terms of the numerical example developed earlier, and fixing the allocation at 1,498 acres for residential use and 550 acres for commercial use, the situation is as illustrated in Chart 3. The change in fiscal policy causes the price of residential land to increase to $20,010 per acre and the price of commercial land to fall to $7,500 per acre.

1,498 acres x $20,010/acre	= $29,974,980
550 acres x $ 7,500/acre	= 4,125,000
TOTAL	= $34,099,980

Chart 3

A Change in Fiscal Policy with a Fixed Land Allocation



This is a reduction of $1,758,452 from the level prior to the change in local fiscal policy.

Land Value Before = $35,858,432
Land Value After (fixed allocation) = 34,099,980
Land Value Decline = $ 1,758,452

Net community benefits decline by precisely the same amount as land value declines. Benefits to the residential zone increase by $3,746,498, and benfits to the commercial zone decline by $5,504,950.

Decline in Commercial Benefits = $5,504,950
Increase in Residential Benefits = 3,746,498
Decline in Net Community Benefits = $1,758,452

In this case, the change in land value is an exact indicator of the direction and magnitude of the change in community benefits. Unfortunately, the precision and even the direction of Brueckner's rule may be distorted if the change in fiscal policy affects land differently within a zone. This can happen for a variety of reasons including differential assessed-value to market-value ratios. However, this potential distortion of Brueckner's rule is probably not sufficient to consider the rule unacceptable in the context of a fixed allocation. On another level, we might criticize the usefulness of a strictly short-run evaluation or the realism of a rigid zoning policy suggested by the fixed allocation context.

Brueckner's rule is a good indicator of the direction of the effects of a fiscal policy change that confers zero or *positive* net benefits on all land uses or alternatively confers zero or *negative* net benefits on all land uses. Graphically if all demand curves either shift in one particular direction or do not shift at all, the change in total land value will always be in the same direction as the change in total community benefits (the areas under the demand curves). The numerical example in the previous section illustrates the failure of Brueckner's rule when the effects of a fiscal policy change are substantially more uneven.

Conclusions

Brueckner's "property-value-maximization" rule is efficient only under some exceptional conditions. For example, land value is an acceptable indicator of the efficiency of local government's fiscal policy provided the change in fiscal policy does not alter the allocation of land among competing uses. Land value is a good indicator if changes in fiscal policy cause the demand for all land uses to shift in the same direction. Unfortunately, conditions such as these are rarely present in the real world.

In our view, Brueckner's rule is not a practical prescription for the administration of local fiscal policy. However, his article is helpful in that it draws attention to the fact that local fiscal policy has important effects on land value. This impact on land value represents a substantial part of fiscal policy's impact on total community benefits. Unfortunately, there is no simple indicator of the total impact of fiscal policy on community benefits. Brueckner's rule will not suffice.

A Reply to Colwell and Gujral

Jan K. Brueckner

Peter Colwell and Surinder Gujral are correct to point out that my property-value-maximization rule breaks down as a guide for choosing the correct public spending level when a long-run perspective is taken. In the long run, a change in the level of public spending will have complex effects on the size and composition of a community's stock of residential and commercial structures. If the resulting change in aggregate property value is counted, the property-value-maximization rule will give the wrong answer. The rule only works properly when attention is restricted to the short-run impact of a spending change.

To make this point clearer, consider the following simple example. Let us suppose that a city manager is attempting to determine the correct level of spending on recreational facilities in his community. Following the property-value-maximization rule, the manager increases spending slightly. Since all houses in the community become more attractive, rents rise. Suppose, however, that the required tax increase just cancels the increase in total rent, so that aggregate property value stays constant. The fact that total property value remained the same indicates to the city manager that the original spending level was correct: the (short-run) property-value maximum had already been achieved. Consider, however, what the city manager would have observed had he waited to see the long-run impact of the increase in spending. Since the community's recreational facilities were improved, we might imagine that consumers would ultimately be satisfied with smaller houses (the public facility would become a more attractive substitute for private recreational space within the home). Therefore, as the community's housing stock is replaced, the city manager might observe smaller, lower-value houses being constructed, with a resulting decline in aggregate property value. He would conclude that spending on recreation was too high to start with, when focusing on the short-run impact would have correctly indicated that the original spending level was socially optimal.

While the above argument indicates that the city manager should not concern himself with the long-run impact of a spending change, there is an obvious practical impediment to doing so in any case. The city manager would be out of office long before the community's housing stock had fully adjusted to the new spending level!

Readers interested in a technical discussion of the above points should consult my paper "Property Value Maximization and Public Sector Efficiency," which is forthcoming in the May 1983 issue of the *Journal of Urban Economics.*

(continued from p. 7)

The implementation of TIF of which the size and location is found by the above procedure would have a positive impact on the community, not only because of the possible sound redevelopment of blighted areas, but also because it can increase the city's future property tax revenues, which, in turn, positively affect the welfare of the community at large.

The study results presented consider the impact of TIF only from the viewpoint of the city's revenue. Thus, the results should not be interpreted as the cost-benefit analysis of TIF. Nevertheless, the findings can serve as a primary and initial guide toward evaluating overall benefits and costs of TIF. The results would be a useful guide not only to analysts confronted with the task of recommending an appropriate size and location of TIF but also for decision-makers concerned with the general welfare of the community at large.

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A Balanced Budget — The Modern Holy Grail

John F. Due

Balance the budget, balance the budget, balance the budget, *balance the budget* .... Round and round goes the merry-go-round, especially at election time...... balance the budget, balance the budget, balance the budget. The phrase has become a shibboleth, on a par with *eliminate the middleman* and *power to the people* — one repeated over and over with little thought about the effects of its implementation, or, in fact, with progressively less thought about implementation at all. Some of the best-known exponents in the US appear to believe that if the phrase is repeated often enough the objectives will be accomplished even if it is not implemented.

Currently the predicted budget deficit for the fiscal year is about $200 billion — and the unemployment rate is around 10 percent. The administration was elected on a pie-in-the-sky platform of higher defense spending, reduction in other government spending, lower taxes, a balanced budget, and economic recovery. Given the political and economic obstacles to significant cuts in the entitlement programs and the limited potential for cutting other government spending, there was no possible chance that these objectives could be attained. But in this topsy-turvy political world, the very groups that should be favoring further tax cuts to bring economic recovery are fighting them, and an administration once greatly concerned about the deficit is defending them.

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Should the Budget be Balanced Under Current Conditions?

To balance the budget, with massive unemployment concentrated in certain areas and among certain groups in the economy, could be economically disastrous and is clearly politically impossible. Increases in taxes and reduction in entitlement and other programs would inevitably reduce consumer spending and increase unemployment. The decline in production could be avoided only if the reduction in the deficit stimulated a sharp increase in real investment — a result that is inconceivable in the face of falling consumer demand. Real investment is, in part, a function of expectations of the business community about the future, but it is heavily dependent upon consumer spending.

There is little danger currently, however, of moving to a balanced budget because of the political resistance. The administration strongly supports higher defense spending. There are major elements in Congress that resist cutting back entitlement programs in a period of unemployment. And the remaining portion of the government sector is, in fact, not easy to cut substantially, even programs about which some serious question can be raised, such as dairy price supports, let alone more generally accepted governmental activities.

Balancing the Budget Once Unemployment Falls

Once unemployment falls to a level of 5 or 6 percent, the case for eliminating the deficit becomes much stronger. Deficits of any magnitude under high employment conditions almost certainly lead to excessive aggregate demand and, thus, to inflation.

Real Estate Developments / *Page 4*

High Tech Industries / *Pages 6–10*

There is little likelihood that this will be offset by business fears of the deficit, which reduce investment. If the economy is restored to relatively high levels, there is evidence from the past that fears of the business community about the deficit, while not absent, are much less strong than in periods of recession. A continued deficit in a period of high employment would be warranted only if total spending were inadequate to sustain output at such a level, a possible result if the portion of national income saved was too high relative to real investment opportunities. But in recent decades, the percentage of national income saved has fallen to levels such that excessive saving does not appear to be likely. Continued deficits with high employment also add increasingly to national debt and interest problems.

The Transition from Unemployment to High Employment

The immediate problem is to move from high unemployment to high employment; what role does the deficit have in this move? As noted, the prospect of continuing deficits — and all indications are that under present and projected policy the deficit will continue at high levels for years, an estimated $300 billion by 1988 — is a serious deterrent to recovery, in at least two ways. First, the fear of continuing deficits in the future lessens the confidence of the business community and real investment. Secondly, to the extent that the deficit is financed by borrowing, the firms may not be able to undertake the real investment they wish to make because too much of the money capital supply is flowing into government borrowing with consequent high interest rates. Alternatively if the deficit is financed by issuance of money (borrowing from the Federal Reserve System) the Fed may regard this borrowing as a danger signal for inflation and curb the recovery by raising interest rates. Even now, fear of inflation is causing the Fed to hold real interest rates to high levels.

The most feasible solution, therefore, is to provide for phasing in changes in taxes and government spending programs so that the budget will be balanced, roughly, once a high level of employment is reached. This will not be easy, so long as the government is committed to high defense spending. It is most unlikely that areas of large acceptable reductions in entitlement and other government programs will be found. The final alternative is, of course, tax increases. These are not popular — but are likely the only solution to the problem.

Choice of the Form of a Tax Increase

The form the increase should take, however, is perhaps even more controversial than the principle of increase. There are several alternatives:

(1) Eliminate indexing before it becomes effective. But indexing is essential to a continuing, equitable tax system and to prevent rebellion over bracket creep.

(2) Eliminate the 1983 income tax reduction and, perhaps, raise rates beyond this, to become effective once unemployment falls below a specified figure. This would restore the income tax to levels nearer those of two years ago, a change completely contrary to the philosophy of the present administration, but with substantial support in Congress.

(3) Introduce a general consumption levy as proposed by Martin Feldstein and others. This could take the form of an expenditure or spendings tax (sometimes referred to as a consumption tax) or a value-added tax.

The expenditure tax would be collected under the same procedures as the income tax, and, in fact, on the same form. Tax would apply to income minus net increase in savings during the year, or in other words to the total consumption of the period. The value-added tax is of course a sales tax, differing from the retail sales tax in that it is collected from all firms in the production and distribution systems, but only on their value added (roughly, sales minus costs of produced goods purchased), rather than entirely from the retailers as is the retail sales tax.

The expenditure tax would be more complicated to operate than the value-added tax, but could be made more equitable through exemptions. Perhaps the chief objection to the value-added tax, apart from regressivity, is that its use would involve federal invasion of the one autonomous revenue source the states have.

The major case for the use of either of these consumption-related taxes as an element in the tax structure is that they would give some incentive to consume less and save more, whereas the income tax may have the opposite effect. They also might have less adverse incentive effects than the higher-bracket income tax rates. The strength of the case for consumption tax depends upon whether or not the total volume of savings in the United States is too low to permit a level of real investment necessary for adequate growth in productivity — a question not easily answered, though the US savings rate is lower than that of most industrial countries.

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Obstacles to Sustained High-Level Employment

Even if recovery continues to a level of high employment, there are serious obstacles to maintaining such a level. The most serious is the revival of inflation, which in turn will lead to efforts to contain it. Such efforts will almost certainly start the economy on the downgrade again. If the policies outlined above were implemented and high employment were attained with a more or less balanced budget, there is great danger that the price level would start to rise. A balanced budget is no guarantee against inflation generated by wage increases in excess of productivity gains. The current unemployment has been highly successful in checking wage increases and thus inflation. But once the unemployment lessens, if unions return to their old patterns of insisting on large money wage increases each year, resumption of inflation is inevitable — unless restrictive monetary policy is undertaken to stop it and cause the economy to fall again into recession.

A high and stable level of economic activity coupled with a stable or slowly increasing price level can be attained only under one of the following sets of circumstances. The first is a policy of restraint on the part of labor unions, limiting overall wage increases to productivity growth — the means by which Switzerland has long been able to restrain inflation. But given traditional wage policies of US labor unions, such a pattern of behavior would not appear to be likely.

The second is an effective incomes policy on the part of the government, which "induces" unions and business firms by tax or other means to restrain wage and price increases. It is not at all clear that such a policy will work. If it does not, then continuing wage and price controls represent the only means to ensure high employment and price stability — and such controls are not only politically unattractive but offer some dangers to the economy as well.

Thus the dual objective of high employment and a stable price level may simply be unattainable — and society will have to accept continuing inflation or recurrent periods of unemployment — even though the budget is balanced. Choice between the two evils must be based upon value judgments. But when the severe personal injury from unemployment is taken into consideration, some inflation may be regarded as preferable to substantial unemployment.

Unhelpful Arguments and Points of View

Rational analysis and policy determination in the field have been made more difficult by several arguments and positions of various groups in the economy. First, as suggested, is the overriding concern with the objective of balancing the budget, per se. Attempting to do so prior to high employment levels can have disastrous effects on the economy; attainment of it at high employment while desirable, does not ensure a stable price level or increases in productivity.

Secondly, and closely related, has been the pressure for a constitutional amendment to require a balanced budget. Such a rule, if rigid, would probably be politically impossible to implement; if it could be, it would have disastrous effects in periods of recession. With adequate escape hatches, it would lose all significance. The drive for it represents in part a conservative effort to thwart the will of the majority, which at times supports unbalanced budgets. It is based on the mistaken reasoning about the desirability and contributions of a balanced budget.

Thirdly, the widespread view that inflation can be caused only by monetary policy, not by labor unions or exogenous influences, is a terminological argument that hampers rational thinking. Obviously unions cannot push up wages and prices generally unless monetary adjustments are made — automatically or by Federal Reserve action. But the inciting cause of the change can certainly be the union policies. In addition, increases in the price level can be stimulated by such actions as OPEC-caused increases in the price of oil. Escalator clauses in labor contracts serve to aggravate the price level increases caused by the latter changes. The clauses were designed to protect labor against loss in relative real income when national income is high and the price level is rising because of excess aggregate demand. By contrast when oil import prices rise, overall levels of living must fall — and no escalation clauses can prevent this; they merely affect the relative distribution of the burden and in the process stimulate an inflationary spiral.

Closely related is the single-track, narrow gauge point of view of the monetarists, that control of the money supply will ensure a stable price level. Overemphasis on the money supply (M), on the evils of inflation, and on the need for controlling it by regulating M was probably the major cause of the present severe recession. Present interest rates remain very high in real terms — given the present low level of inflation — and constitute the most serious barrier to recovery — a view ignored by those who continue to horsewhip the unbalanced budget.

Fourthly, the arguments of some groups for return to the gold standard divert attention from effective policymaking. Demand for a return to gold is comparable to arguments for return of the United States to the charms — often exaggerated — of Victorian America. Except by a small band of gold zealots, it is generally recognized that operation of a gold standard under present international and domestic economic conditions would either fail completely or would seriously increase economic instability by preventing the use of fiscal and monetary policies essential for recovery and prevention of mass unemployment.

Finally, the charlatan-like features of extreme supply-side economics has led to the following of false trails to economic recovery and growth. Without question there are situations in which tax reductions may stimulate the economy, not only in the traditional demand-increasing sense, but through effects upon willingness to undertake both savings and real in-

(continued on p. 9)

REAL ESTATE DEVELOPMENTS
Interest Rates and the Federal Deficit

Philip Rushing and Peter Colwell

> In a speech Thursday night, Paul Volcker, Chairman of the Federal Reserve Board, said large federal budget deficits, by keeping interest rates high, could sidetrack any recovery from the recession.
>
> *Chicago Tribune*, 22 January 1983.
>
> Private economists worry that the government's enormous credit demands over the next several years could keep interest rates high or drive them higher, shutting business and consumers out of the credit markets and hampering the long-awaited economic recovery.
>
> *Wall Street Journal*, 31 January 1983.
>
> Lenders attribute the rate rise (for home mortgages) to nervousness about federal government deficits among investors who buy mortgages.
>
> *Wall Street Journal*, 1 February 1983.

There is a long-standing and currently popular view that large federal deficits cause high interest rates. However, aside from the coincidence of high interest rates and large federal deficits of the past few years, there is essentially no relationship to be found in the data between federal deficits and interest rates. Instead, there is merely a story circulating among some economists, bankers, businessmen, and journalists. The story goes something like this: The federal deficit has been growing larger since the beginning of the current recession in mid–1981. The deficit is financed by borrowing. The federal government has no constraints when it comes to borrowing — it simply bids up interest rates until it attracts the necessary funds. Since there is only so much money out there to be borrowed, this leaves less for others, for example, business, mortgage, and consumer borrowing. Consequently, the general level of interest rates is pushed up by the financing of large deficits, and other borrowers are crowded out. This effect is said to be rapid, or short run, and without substantial lags.

One particular group of adherents to this story is the nation's REALTORS. Because interest rates are a primary determinant of housing demand, REALTORS are naturally concerned about relatively high interest levels. This concern has been channeled into political efforts to reduce the federal deficit and thereby (following the story) reduce interest rates. Unfortunately these macro-economic relationships are complex, and the REALTOR'S efforts may be misdirected.

Philip Rushing is visiting assistant professor and Peter Colwell is a professor in the Department of Finance, University of Illinois, Urbana-Champaign. They would like to thank Han Bin Kang for valuable research assistance.

This paper was motivated by the desire to present evidence of the truth of the story described above. But in the early stages of our investigation we encountered a side issue. Specifically, a concern for the way deficits are financed. This issue serves to muddy the waters. While all deficits are financed by borrowing, some borrowing results in the creation of new money. This creates two types of problem. On the one hand, it creates a difficulty for those who adhere to the simplest version of the story that federal deficits cause interest rates to rise. After all, if the Federal Reserve is financing new Treasury borrowing, that is, creating money, why should anyone be crowded out by higher interest rates? On the other hand, it creates the opportunity to shift our attention to a longer-run framework. The money creation is said to lead to inflation and, hence, to higher nominal interest rates. We are interested in side-stepping the longer-run, money-creation aspects of deficit financing. The issue in this paper is not whether the monetized portion of the deficit causes inflation that, in turn, causes interest rates to rise. Instead, we are interested in whether nonmonetized deficits, that is, that portion of the deficit not financed by money creation, cause rates to rise in the short run.

Data and Results

We examined data from the first quarter of 1968 through the fourth quarter of 1981. To avoid the effects of inflation, we compared the inflation-adjusted rate of interest to the inflation-adjusted federal, nonmonetized, deficit. Our inflation-adjusted rate of interest is the annual yield on three-month Treasury Bills in the secondary market minus the percentage change from the previous quarter in the consumer price index. Our explanatory variable is the difference between the federal deficit by quarter and the change in M1, divided by the consumer price index. The deficit and M1 are seasonally adjusted and are expressed in terms of annual rates.

We found no relationship between inflation-adjusted interest rates and the nonmonetized deficit. Chart 1 shows a plot of these two variables and indicates the extreme variability of inflation-adjusted interest rates across various levels on nonmonetized deficits. Even after some of the outlying data points are removed, there is still no significant relationship between these variables.

Interesting but contradictory relationships emerge as these two variables are examined across time. Chart 2 shows the nonmonetized real deficit on the right axis, the inflation-adjusted interest rate on the left axis, and time on the horizontal axis. While there are brief periods when interest rates and the nonmonetized deficit moved together, for example, 1970–71 and 1976–78, there are also brief periods when they

Chart 1

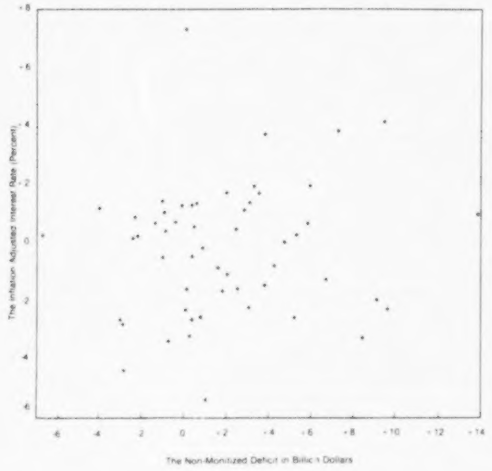
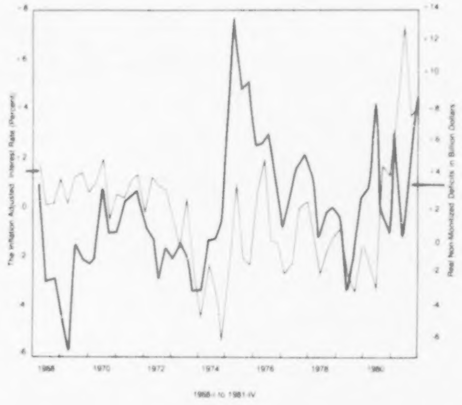


Chart 2



appear to move in opposite directions, for example, 1969, 1975, and 1980–81. Over the long run, we find no predictable relationship between the variables. If the nonmonetized deficit increases, interest rates are just as likely to go up as down.

Variations of our basic model, such as using variables in nominal terms, lagging explanatory variables by one quarter, and adjusting the nonmonetized deficit by the real growth of the economy, all failed to alter the results. We still find no systematic relationship between interest rates and the nonmonetized deficit.

Other research has produced results similar to ours. Writing in the October 1982 issue of the Federal Reserve Bank of St. Louis *Review*, Keith M. Carlson concludes, "There is little evidence ... to support the notion that interest rates would be affected greatly by tightened fiscal policy."

Since Carlson does not elaborate on this particular finding, an interesting question (for us) goes begging. If higher interest rates do not bring about the necessary surplus in the nongovernment sector to offset the government deficit, what does? We suggest the following hypothesis. Consider an increase in debt-financed government spending. Holding other things constant, this will result in an increase in national income and an increase in saving in the nongovernment sector. Thus, the necessary surplus is achieved via changes in national income rather than through changes in interest rates. Like the story presented at the beginning of this paper, this hypothesis has a certain surface appeal but is just a story at this writing.

Conclusions

We have not been able to identify a systematic relationship between the federal deficit and either real or nominal interest rates. We believe that it is the responsibility of those who believe the story presented earlier and use the story as a device for analyzing the impact of policy to demonstrate that the story is indeed true. We readily admit that its truth might be revealed by looking at the question differently. For example, a different interest rate variable and/or a different proxy for the nonmonetized deficit might reveal the essential truth of the interest-rate-deficit story. Another possibility is that the story only works during episodes of low unemployment or falling unemployment. We initially took the view that the story made some sense and tried many possibilities. All failed. Until we are shown otherwise, we question whether a story so difficult to verify should be given much credence.

It is perhaps a sign of the times that we all need someone to blame for our troubles, and in the context of economic hardship (for example, unemployment, high real interest rates) the federal deficit is a convenient scapegoat. Recently, the extent of the blame has reached the absurd. "Americans are paying for [the deficit] with inflation, stagnation, unemployment, and consequent social and psychological pressures that produce large scale mental illness, crime, violence, suicide, corruption, and other evils" (Editorial, *The Champaign-Urbana News Gazette*, 25 January 1983).

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An Introduction to High Tech

John F. Schnell

The key word in the vernacular of 1980s-style industrialization is "high tech," that catch-all term for the group of industries that will lead areas like the Midwest out of the their economic malaise. High tech, of course, refers to high technology industries, and it really means high growth. It is portrayed as a panacea for the ills of an economy relying on the increasingly outmoded "smokestack" industries of heavy manufacturing. High tech is believed to be that area in which the United States still has a comparative advantage over the rest of the world. From one coast to the other public officials are trying to find a way to attract these industrial saviors. There are some 11 million unemployed workers in this country, and every locality would like to find a way to put its share of them back to work and resurect its economic fortunes. Everyone seems to want high-tech firms, believing they are the cure. Because people seem to want these industries (and everyone wants to read about them), this is another one of those articles about chasing high tech; it attempts to assess whether or not the prize is all that its cracked up to be.

Here are what seem to me to be some of the basic questions: What are high tech industries? To what degree can employment in high tech industries replace the jobs lost in manufacturing? What fuels high tech growth? Is the supply of brainpower — scientists and engineers — adequate to sustain the level of growth required if this industry is to supply anywhere near the economic boost being attributed to it? Is there a role for the government, at any level, in supporting this engine of economic growth?

What is High Tech?

The answer to the first question is not as easy as one might think. There seems to be no general agreement about what constitutes a high tech industry, except that it should exhibit high growth. There may be more, but a representative list would include computer technology, scientific instruments, robots, semiconductors, and biotechnology. The US Bureau of Labor Statistics (BLS) has given some limits to a definition of high tech by placing 36 industries in a group because their research and development (R&D) expenditures and number of technical employees run twice as high as the average for all US manufacturing. This group includes producers of drugs, computers, electronic components, aircraft, and laboratory equipment. Some service industries also belong in this category: computer programming, data processing, and research laboratories. An expanded BLS group, designated as "high tech intensive," in which R&D spending and technical employment are above the national average, includes chemicals, petroleum refining, and such product lines as textiles, printing, electrical and medical equipment.

High Tech Jobs

An answer to the second question comes from studies done by the BLS and by Data Resources Incorporated (DRI) for *Business Week*.[1] Less than half of the two million jobs lost in manufacturing over just the past three years will be replaced by the high tech jobs created over the next decade, according to these studies. The industries defined as high tech by the BLS are expected to generate many more jobs than the traditional manufacturing sector. The estimate is 730,000 to one million jobs, but most of these are not likely to be new technical occupations (see the Table). According to DRI fewer than one-third will be for engineers and technicians. The major flaw in the argument for courting high tech is that these industries have a relatively small base. In 1979 these industries employed only about three million workers, or about 3 percent of the nation's nonagricultural work force. DRI estimates that this will rise to 4 percent by 1993. It is true that these industries are growing at a rapid rate, but they just are not large enough to justify their being dubbed the vanguard of an economic rejuvination.

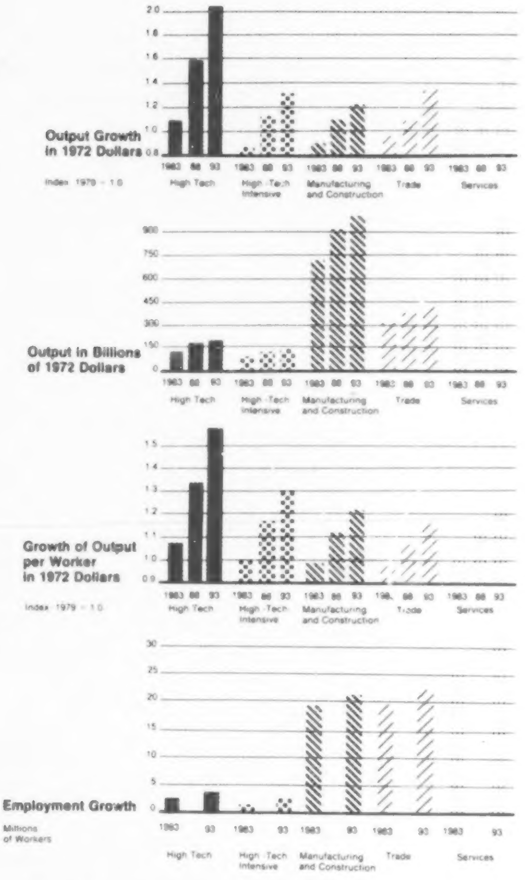
Another drawback of high tech is that these industries are very productive and will become more productive (see the accompanying Charts). As strange as this may sound, the idea is that as productivity — output per worker — increases, it becomes profitable to hire more workers. Each additional worker is contributing more to output than they are taking away in wages, up to a point. In order to attract more workers, it may be necessary to pay higher wages, reducing the profitability of continuing employment expansion. But more important, perhaps, is the fact that productivity is expected to grow at such a rate, compared with the growth in the demand for high tech products, that the growth in employment will not be nearly so great. The DRI projections are that, in 1972 dollars, output per high tech worker will rise by 46 percent between 1983 and 1993. The projected increases in the manufacturing and services sectors are 24 and 23 percent, respectively, only about half of the high tech estimate. The projected increase in demand is 87 percent over the next decade, or $206 billion, accounting for 10 percent of gross national

Table

The Growth in High Tech Occupations

	Growth 1980-83	
Occupation	Number of jobs	Percent
Operatives	226,183	22%
Managers & clerical workers	149,650	22
Engineers	110,930	40
Craft & related workers	98,121	21
Engineering & science technicians	70,693	37
Professionals, except managers & clericals	33,305	22

Source: Data Resources, Inc., as published in Business Week, 28 March 1983, p. 87.



Source: Data Resources Inc., as published in *Business Week*, March 28, p.86.

product. This translates into a demand for only a 29-percent increase in high-tech employment over this 10-year period. Furthermore, the growth rate in high tech employment will slacken as these industries follow their natural direction towards automation. After all, they produce the products that automate other industries. Their natural direction would be to use, wherever possible, whatever products they produce. And in general, high tech industries will be using labor-replacing technology to produce labor-replacing products. These are the firms that produce the robots that one day may replace the human workers in steel and auto plants, for example. A study by the W.E. Upjohn Institute for Employment Research estimates that by 1990 the number of robots working will grow from 2,400 at present to between 15,000 and 25,000. These robots are expected to create 3,000 to 5,000 jobs, but replace 50,000 auto workers. So as these industries automate — and they are likely to do so at a more rapid rate than that seen in traditional manufacturing — employment growth will slow. Some evidence of this is given by the projection that in 10 years these firms will employ 3.2 machine operators for every engineer, down 11 percent from 1980.

There are related aspects of the character of high tech that one should consider. These firms seem to be fairly mobile, in terms of physical plant, especially compared to heavy manufacturing. They employ a number of skilled and professional workers, but also a number of unskilled workers in an assembly-line-type process. They seem to be nonunion, generally. Certainly, the unemployed steel or auto worker, whom some could see as the person benefiting the most from the growth of high tech, will likely face a much lower wage structure. This also means reduced personal income, generating lower tax revenues for the local community, even given such an improbable employment switch. And at least some high tech firms either have located or are planning to locate some of their facilities overseas to take advantage of lower-cost foreign labor. All of this does not say that the location of a high tech firm in one's community would not be a good thing. But it does suggest that high tech may not be either as available or as hugely beneficial as seems to be generally believed.

Attracting High Tech

Nevertheless, the quest for high tech appears to be in high gear. Every state and city is competing through the use of tax incentives, venture capital support, and research facilities. Illinois has a 10-story "incubator" building in Chicago's West Side Medical Center in which "start-up" companies can lease space and share services. Also, a privately funded "Chicago Science Foundation" to support local research is being considered. Chicago is also considering a plan to supply capital to new companies until they can attract venture capital on their own. In return, the investment fund would acquire an equity position in a young company, and the firm would be obligated to locate in Chicago.

There are factors less tangible than a low-wage area and tax incentives that help attract a high tech firm. With a highly educated technical and professional work force in control of, and in demand by, these companies, atmosphere or quality of life away from work becomes important. Is it easier to attract scarce computer programmers to Chicago or to Phoenix? Heavy manufacturing was interested in access to raw materials, energy, and transportation. High tech is interested in the ambiance desired by its needed skilled, but scarce, workers.

A more concrete but still less traditional requirement is access to a major technical research institution, such as the University of Illinois. The research at these institutions provides the basic stimulus to the innovations that high tech firms eventually provide as usable products. The major high tech centers of California and New England were constructed around the availability of Stanford University and the Massachusetts Institute of Technology.

A pool of skilled labor also serves as an inducement to high tech firms. The industrial Midwest may have an advantage in this area, provided the necessary retraining is carried out. Workers displaced from declining smokestack industries, who have general work experience but lack the specific skills needed in high tech firms, could, once retrained, both provide

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a location inducement to these firms and be put back to work at the same time. It may require public-supported retraining programs to give a community a competitive edge over another community. In fact, there are already programs in a number of states aimed at retraining workers specifically for high tech jobs. But unemployed heavy manufacturing workers, still hoping to be recalled to their higher-paying jobs are not rushing to these programs in great numbers.

Technical Education

Now there is the question of the supply of technically trained human resources. Will it be adequate to meet the needs of high tech growth? This may be the biggest question of all, for it confronts the issue of technological literacy. Is this nation going to produce, not only enough scientists and engineers to meet the demands of private industry but also a populace literate enough in science and mathematics to comprehend and to deal with an increasingly technologically oriented world? The current facts do not bode well for the future.

Only 6 percent of US college students today are enrolled in engineering programs, compared with 21 percent in Japan, despite the monetary rewards for completing a degree in these fields. And generally, time spent in school by children in the Soviet Union and Japan is greater than it is in the US. A Soviet or Japanese child spends two and one-third hours in school for every one spent by an American child.

A concomitant problem is the shortage of qualified teachers. One-half of the science and math teachers hired in 1981 were uncertified. Over the past decade the number of math and science teachers in public schools dropped by 77 and 65 percent, respectivly. A teacher trained in either of these disciplines finds that the financial opportunities in private industry make those in teaching pale in comparison. With government support for public education on the decline, it is difficult to see a reversal in this trend. These occupations are not currently attractive. One must conclude that the supply of technical professionals will, at best, lag behind demand.

Government Support

The final question inquires about government support. The role of local government has been discussed. It involves competition among areas for locating high tech firms. But what role, if any, is being played by the federal government in the name of society's welfare? As usual, there are conflicting notions of what this role should be, even of what enhances society's welfare. The administration, it seems, would like to continue with its strategy of

(continued on p. 12)

Prospects for High Tech in Illinois

Joan C. Junkus

Common economic wisdom holds that the housing and automobile sectors usually lead the country out of a recession. But in recent years, both sectors have been so severely depressed that economic recovery must be looked for in other quarters. The new leading sector promoted by Atari Democrats in Congress and almost every state economic development agency has been "high tech," a heterogeneous mixture of computer technology, scientific instruments, business and office machines, and even the less quantifiable products of gene splicing and biotechnology. Can Illinois expect to be led from its current economic straits by the manufacture of such advanced technology? As the Illinois economy is constructed now, the answer seems to be no.

Illinois employment levels in various sectors as forecast for the next two years by the Bureau of Economic and Business Research at the University of Illinois, Urbana-Champaign indicate that the traditional industries, such as transportation equipment, mining, primary metals, and chemicals will be the fastest growth sectors in Illinois. By the fourth quarter of 1984, employment in transportation equipment is expected to rise by 46.1 percent over the depressed 1982-IV levels, while employment in petroleum and coal is expected to grow by 35.7 percent, primary metals by 9.3 percent, chemicals by 8.8 percent, and rubber by 7.0 percent (see Table 1). By contrast, the rates of growth in employment in such high tech areas as nonelectrical and electrical machinery, sectors which include office machines and computers, communications equipment, household appliances, and electronic components, are expected to be more modest, rising 3.5 percent and 2.6 percent, respectively. Employment in instruments is expected to grow relatively quickly at first but then decline, averaging 5.8 percent over the next two years. Reflecting the depressed condition of the automotive industry in general, an auto-related sector, stone, clay, glass is also expected to provide lackluster employment growth, increasing by 1.8 percent. The Illinois forecast assumes a gradual recovery in 1983 and 1984 for the US, with unemployment decreasing slowly to the 9-percent level by 1984 and production rising in early 1983.

While these numbers reflect in particular the fact that unemployment in the more traditional areas are currently at record low levels, and thus recovery, when it comes, can be quite dramatic, the various forecasted growth rates also reflect the current industrial composition of the state of Illinois. For the short term, Illinois must depend on its traditional base as a "smokestack" state, tied to the prospects for economic recovery in heavy industry and transportation.

If Illinois's historic reliance on heavy industry remains unchanged, the longer-term prospect for the state can be expected to reflect the slower growth

Table 1

Forecasted Employment, State of Illinois

	EMPLOYMENT (000s)					
	1982.4	1983.4	Δ%	1984.4	Δ%	Δ% (82.4-84.4)
Smokestack industries						
Transporation equipment	33.58	42.53	26.6	49.06	15.3	46.1
Petroleum & coal	9.82	12.20	24.2	13.33	9.3	35.7
Mining	27.25	31.55	15.8	35.70	13.1	31.0
Chemicals	57.81	60.92	5.4	62.89	3.2	8.8
Primary metals	67.40	72.33	7.3	73.70	1.9	9.3
Rubber	40.01	41.37	3.4	42.83	3.5	7.0
Stone clay glass	25.79	25.73	-.2	26.25	2.0	1.8
High tech						
Nonelectrical machinery	176.06	174.97	-.9	182.13	4.1	3.5
Electrical machinery	130.27	128.55	-1.3	131.09	2.0	.6
Instruments	29.58	31.42	6.2	31.30	-.4	5.8

Source: Bureau of Economic & Business Research, University of Illinois, Urbana-Champaign

Table 2

Long Term Forecasted Employment

	US			Illinois		
	1978	2000	Δ%	1978	2000	Δ%
Smokestack						
Transportation equipment, excluding motor veh.	1009.3	1114.0	10.4	26.0	32.0	23.0
Primary metals	1277.9	1327.0	3.8	102.7	109.6	6.7
High tech						
Instruments	655.5	930.0	41.9	46.0	45.9	-.1
Electrical mach.	2022.9	2794.0	38.1	169.0	149.6	-11.5
Nonelectrical mach.	2360.6	3240.0	37.3	230.5	226.4	-1.8

Source: US Dept. of Commerce, Bureau of Economic Analysis

forecast in those sectors. Projections from the US Department of Commerce through the year 2000 reflect Illinois's expected difficulty in keeping pace with the high-growth prospects forecast for the US in high tech sectors. US employment in instruments is projected to increase 41.9 percent through the year 2000, while Illinois employment in that sector is expected to remain essentially unchanged, declining by .1 percent. Similarly, US rates of growth in nonelectrical and electrical machinery are expected to be 37.3 percent and 38.1 percent, while Illinois employment in these sectors is expected to decline by 1.8 percent and 11.5 percent, respectively. The sectors in which employment is expected to match or exceed US growth are transportation and primary metals, two of the slowest growing sectors of the US economy (see Table 2).

How likely are these forecasts to become economic reality? The forecasts utilize past performance of the Illinois economy and assume that basic historic relationships will remain unchanged. By some measures, Illinois has actually been losing relative share in the high-growth, high tech industries for the past ten years. Employment declined considerably between 1970 and 1980 in just those sectors targeted as high-growth sectors in the US economy: employment declined 32 percent in office machines, 11 percent in instruments, 26 percent in household applicances, 45 percent in radio and TV equipment, 13 percent in communications equipment. Other measures also indicate a declining position. Illinois value added in manufacturing as a percentage of US total has declined in the ten years from 1967–77 and the decline has been particularly strong in the high tech industries. While overall manufacturing value added declined from 7.6 percent of the US total to 6.9 percent, value added in electrical machinery declined from 10 percent to 9 percent, in nonelectrical machinery from 12.3 percent to 10.6 percent, and in instruments from 10.2 percent to 6.7 percent. Illinois's share of research and development funds from federal sources has also declined in recent years. Illinois now ranks 17th out of 51 states in federal R&D dollar support in 1981, and its share of federal dollars has declined from 2.2 percent in 1977 to 1.7 percent in 1981.

There are, however, indications that Illinois has some of the tools required to adapt to changing economic reality. Illinois ranks fourth in the number of institutions of higher learning (after California, New York, and Pennsylvania) and ranks second in the number of doctorates awarded. And enough high tech firms have been attracted to the Chicago area that there is talk of a high tech corridor similar to Highway 128 in Massachusetts developing on the city's west side near Naperville.

While it is not possible for every state to become a leader in the new high tech industries, Illinois has the potential to compete successfully for high tech jobs. The state has a large population, an established infrastructure, several major universities, and a number of local economic development agencies that are aware of the importance of attracting a new type of industry to Illinois. A concentrated effort now can shift Illinois's current economic structure to a more promising configuration.

(continued from p. 3)

vestment, with greater productivity, lower costs, and increased output. But supply-siders went far beyond this. Within the context of relatively high-level employment, it is little short of preposterous to argue that output could be so stimulated by tax reductions (through prospective effects on supply) as to increase government revenue despite the cut. There are two consequences of implementing such policies. One is that if the change is successful in increasing the percentage of national income saved, it does not necessarily bring a comparable increase in real investment. Indeed, it may reduce investment because the higher savings rate lowers consumption and thus reduces the profitability of additional investment. The other potential consequence is that the resulting deficits — which occur if the program does not bring a large increase in income and tax revenue — will be contrary to the supply-side philosophy. Ironically, in recent months the administration has been defending the 1983 tax cut strictly on demand consumption-stimulating grounds, the exact reverse of supply-side logic.

A defense can be made for policies that raise the national savings/income ratio, but only if consumer demand after the change is great enough to support the higher level of real investment.

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Conclusion

The search for a modern Holy Grail, in the form of a balanced budget, is not only certain to be unproductive but a source of potential hazards to the economy. Any attempt to balance the federal budget with over 10 percent unemployment would have disastrous results — and it is obvious that it is not a politically feasible. In contrast, policies designed to eliminate or minimize the deficit in periods of high employment have merit though they do not insure stable price levels. Eliminating the deficit can be done only through substantial reduction in national defense and/or entitlement programs, neither of which is likely to gain strong administration and congressional support, or by tax increases. If we are to maintain higher defense spending and entitlement programs, we must pay for them through higher taxes — or suffer premature curtailment of recovery and/or renewed inflation. Whether the tax increases should take the form of restored income tax levels or a general consumption levy can be answered only in terms of value judgments about equity. We also need better evidence than we have about the adverse effects of income taxes on incentives and the inadequacy, with income taxes, of total savings at high employment levels to allow adequate real investment and increases in productivity and real income levels.

One important element in rational thinking and policymaking is to get rid of the shibboleth of a balanced budget, realizing that it is not a prime objective in itself and that attainment of it under present conditions could have disastrous results. While long-term minimization of the deficit with high employment is desirable, it is by no means a guarantee against inflation. Meantime, the merry-go-round continues — balance the budget, balance the budget, balance the budget, balance the budget.

The Office Construction Boom and Slowdown

Karen Marie Mokate

The housing construction industry has dramatically declined since 1979; the last three years have shown that economic slowdowns have a disastrous impact on housing construction. The office building construction market has been much more fortunate, however; office construction "boomed" in the late 1970s and peaked in 1979. As housing developers were beginning to suffer the consequences of a sluggish market, office developers were in their heyday.

The office construction market remained healthy through 1979 and 1980. The past two years, however, have seen the softening of the market, with consequent declines in rent and dramatic increases in office vacancy. It appears, indeed, that the recession-proof nature of that market was only temporary.

The Boom in Office Construction

The amount of office space that was constructed and leased annually increased steadily during the mid-1970s. Any declines in the amount of space leased were attributable to supply shortages and *not* to insufficient demand. In fact, demand for new office space consistently kept pace with, and often outstripped, the supply of new space coming onto the market. As a consequence, rents soared. Estimates of the national average per-square-foot rents indicate that rents in large cities more than doubled between 1978 and 1982.

Encouraged by the high rents and unsatisfied demand for office space, developers invested in new office projects both within and outside of many central cities. The value of offices put in place increased steadily from $6,315 to $12,770 million.

In Illinois, the construction of office buildings has followed a similar pattern. Although data on the value of office buildings completed in Illinois are unavailable, we can discern the pattern of construction activity from the number of building permits issued for office construction and the estimated cost of construction at the time of permit issuance. The number of permits issued and the estimated cost of construction for Illinois, for the six-county metropolitan Chicago area, and for the city of Chicago indicate that the Illinois office construction market hit a peak in 1979 and suffered a substantial but short-lived slowdown in August 1980. Although the economy of late 1980 and early 1981 were mired in recession, investment in office building construction maintained a fairly healthy level.

The Table shows that office construction in the state has been dominated by the Chicago metropolitan area. While only 11.53 percent of the Illinois office building permits were issued in the city of Chicago, the value of those buildings was 45.32 percent of the value of permit-authorized office buildings in the state. It must be kept in mind that the number of permits issued is not really a good indicator of construction activity since it tells us nothing about the total amount (in square feet) of space constructed. It only gives an indication of the number of buildings constructed. Of office building permits, 59.55 percent were issued in the six-county Chicagoland area; the value of the office buildings in those six counties represented 89.41 percent of the total value for permit-authorized office construction in Illinois.

It should come as no surprise that the state office building industry is dominated by the Chicago area. The fluctuations of office building construction in the Chicago area become the fluctuations of the state's office construction industry.

The Recent Slowdown

Nobody expected the boom in office construction to last forever. The market for new office buildings is, by its very nature, cyclical. The only doubts are

Table

Office Building Vacancy Rates in Selected US Cities (Percent)

	Ntl	Chicago	Wash,D.C.	SanFr.	Atl´a	Houston	L.A.
Dec,1978	5.6	4.3	0.2	0.4	13.3	2.0	1.8
March,1979	5.2	4.7	0.4	0.5	12.5	1.7	2.5
June,1979	4.8	3.0	0.3	1.6	10.0	1.6	1.4
Sept,1979	4.2	3.0	0.1	0.2	12.0	1.7	1.3
Dec,1979	3.6	3.2	0.1	0.4	11.6	1.7	0.3
March,1980	3.4	4.2	0.1	0.2	11.9	1.5	1.2
June,1980	3.5	4.1	1.1	0.2	12.5	1.1	0.2
Sept,1980	3.9	3.7	0.9	0.1	13.1	1.8	0.4
Dec,1980	4.1	3.7	0.8	0.1	13.9	1.4	0.2
March,1981	3.8	3.6	0.5	0.1	12.1	2.2	0.3
June,1981	4.1	4.0	0.7	0.1	11.6	1.9	0.3
Sept,1981	4.4	4.0	1.5	0.3	12.3	1.9	0.5
Dec,1981	4.8	4.9	2.7	0.4	17.7	1.3	0.8
March,1982	5.5	5.0	4.8	0.8	15.4	1.3	1.9
June,1982	7.1	6.4	6.3	3.4	15.2	2.3	3.8
Sept,1982	8.9	7.6	7.3	3.6	20.1	2.9	6.9

Source: Coldwell Banker

regarding *when* the slowdown occurs and for how long it lasts.

Nationwide, as well as in Illinois and Chicago, the boom has, indeed, come to an end; office construction has slowed substantially in the past 18 months. The office market has been affected by the recession, and its recovery may be several years down the road.

The slowdown in new office construction comes only after a decline in demand for office space. It has simply become more difficult to lease out new office space, as made evident by rapidly rising vacancy rates. According to the Coldwell Banker's Office Vacancy Index of the United States, those rates have begun to soar, hitting a national average of 8.2 percent in September 1982. One year earlier (September 1981), that rate had been 4.4 percent. During the two years previous to that, it was fairly stable, fluctuating between 3.4 and 4.2 percent. Table 2 indicates that the vacancy rate in many cities around the nation (including Chicago) have risen sharply in 1982.

An underlying cause of the slowdown in the office building market is, indeed, the recession. Uncertainty regarding the future and pressures to cut costs have forced many firms to postpone or to cancel plans for new offices and for office expansions.

It would be negligent, however, to say that the slowdown in demand is the sole cause of the slump in the office building market. In fact, we should recognize that the total amount of office space occupied has never been greater. The total amount of space leased in the US has increased monotonically. In the Chicago area office market, 1,737,000 square feet of new space was leased in 1977, 3,726,000 square feet in 1979, 3,532,000 in 1980, and 3,552,500 in 1981 (Data from Julien Studley, Inc., Chicago). Although demand for new space has not continued to increase as it did in 1977 and 1978, it has maintained a fairly stable high level.

Thus, the softening of the market must also be attributed to excess supply. The typically cyclical nature of office construction is characterized by periods of excess demand (like those of the late 1970s) followed by periods of oversupply (like those currently being experienced). The unrelenting increases in new office construction during the last five years have left the market flooded; the supply brought onto the market would have only been absorbed if demand had grown steadily and substantially in 1980, 1981, and 1982.

The combination of this excess supply and the recession-induced slowdown of demand growth has, therefore, brought on the market slowdown. Perhaps the magnitude of the slowdown is most clearly described by the number of square feet of office space available at year end. Space available on 31 December fell from 40.5 million square feet in 1978 to 34.6 million in 1979. However, the amount available has risen dramatically since 1979; at the end of 1980, a slowdown was already becoming evident. At that time 79.4 million square feet of office space were available in the US. By the end of 1981, 92.5 million square feet were available and the figure for 1982 was 160.4 million square feet! (Data from Office Network, Inc., Houston.) There is currently a 3 1/2-year supply of office space available; and with large supplies of new office space still under construction, the excess is likely to become larger.

In Chicago's downtown area, there were approximately 15 million square feet of office space available at the end of 1982; there were an additional 4.5 million square feet available in the suburban market. At the end of 1981, there were 15,182,744 square feet of downtown office space available, according to the Studley Report and Spacedata/Chicago. Compare that figure with 9,014,877 square feet available at the end of 1980 and 539,000 at the end of 1977. The amount of vacant space in Chicago should level off this year; additions to the stock of office space available will come predominantly from the vacating of currently occupied space and not from new construction.

Certainly Chicago, like the rest of the nation, is faced with an oversupply of office space. (The current supply in Chicago has been estimated to be over a three-year supply, approximately equal to the national average.) That will hold down rents in the coming years. Unfortunately, it will also mean economic disaster for some real estate developers and will create the need for action by bankers who have loaned the funds for construction of what have come to be vacant buildings. It will also reduce construction employment. The office real estate industry will suffer the consequences of its 1977–1981 boom for the next several years.

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(continued from p. 8)

reducing the role of the federal government in most nondefense areas. Clearly, support for education falls in this area. But Congress appears much more willing to supply funding to some programs that would aid high tech development. There are a variety of bills designed to support in some way scientific and technical education. And there are bills designed to close the R&D gap. As a percentage of GNP, less is spent on R&D in the US than in Japan. As a step toward remedying this, bills are being introduced that would exempt from antitrust laws joint R&D ventures, renew the 25-percent tax credit for R&D activities, and give tax credits to computer companies for donating computers to schools. This promises to be at least a warm, if not a hot, political issue in the 1984 presidential campaign. Presently, however, without administration backing — and it does not seem to be forthcoming — little substantive legislation can be expected to be passed. The irony here is that it is precisely these high tech firms which would produce the futuristic, laser-type weapons offered by the Reagan Administration as the next step in our nuclear weapons defense posture.

Concluding Remarks

High tech will grow faster than manufacturing as a whole over the next decade or more. It will be a source of jobs; but because of productivity improvements, the relatively small size of the industry, and the nature of the industry itself, employment growth will not match the growth in output. A sufficient supply of technically trained workers seems to be a problem. Investment in this training may have to be supported publicly. But other than the state and local support being offered as a means of attracting high tech firms, support at the federal level is not likely before the end of 1984.

Is high tech a good thing? Certainly. Is it as good as everyone seems to think it is? Probably not. Is it going to be an economic savior? Not likely. Should a community go all out to attract high tech firms? Perhaps.

Note

[1] Much of the factual material for this article comes from *Business Week*, 28 March 1983.

ILLINOIS BUSINESS INDEXES

	Percent Change March 1982-March 1983	March 1983	February 1983	January 1983	December 1982	March 1982	February 1982
Coincident indicator (1969=100)	−6.0	102.65	102.33	101.69	102.89	109.2	113.3
Employment-manufacturing (in thousands)	−10.24	947.7	945.7	939.9	949.5	1055.8	1064.3
Average weekly hours-manufacturing	1.53	39.8	39.8	39.4	39.8	39.2	39.5
Weekly earnings-manufacturing	4.39	$378.10	$377.30	$372.33	$376.91	$362.21	$365.98
Help wanted advertising-Chicago (1967=100)[a]	−12.5	42	42	39	45	48	51
Help wanted advertising-St. Louis (1967=100)[a]	−7.5	37	38	37	33	40	39
Retail sales (in millions)[b]	14.14	$4,794	$4,153	$4,048	$5,569	$4,200	$3,614
Coal production (in thousands)	−13.42	5,626	5,061	5,188	4,287	6,498	4,833
Petroleum production (in thousands)	11.2	2,500	2,300	2,400	2,416	2,249	1,613
Vendor performance, (percent)[c]	42.9	50	42	41	38	31.2	34
Residential housing units	212.4	2.093	.829	.702	1.70	.67	.52
Value of residential housing	214	$112,227	$46,538	$36,222	$66,778	$35,733	$21,606
Industrial buildings	−61.3	$6,114	$9,881	$8,634	$5,093	$15,797	$8,283
Office, banks and professional buildings	−28.6	$27,768	$23,161	$16,520	$33,784	$38,908	$20,787
Stores and other mercantile buildings	1.5	$10,306	$3,853	$4,143	$5,954	$10,156	$4,810
Other[d]	−5.9	$3,463	$2,513	$2,203	$2,581	$19,242	$26,881
North Central US[e]	3.7[i]	-	159.8	-	159.7	154.1[f]	152.1
North Central/population more than 1,250,000[e]	4.6[i]	-	162.4	-	162.0	155.2[f]	153
North Central/population 385,000 to 1,250,000[e]	2.9[i]	-	159.6	-	159.3	155.1[f]	151.9
North Central/population 75,000 to 385,000[e]	3.0[i]	-	155.8	-	156.2	151.2[f]	149.1
North Central/population less than 75,000[e]	2.2[i]	-	156.6	-	156.8	153.3[f]	151.0
Chicago (1967=100)	13.1	293.7	293.7	294.0	293.1	259.8	274.9
St. Louis (1967=100)	4.5	293.2	-	291.1	-	280.7	-
Prices received by farmers[g]	−2.8	-	106	100	104	109[h]	110
		1982:IV	1982:III	1982:II	1982:I	1981:IV	1981:III
Personal income (in millions)	3.6[j]	$141,560	$140,832	$138,355	$136,518	$136,636	$133,616

[a]The Conference Board, *Help Wanted Advertising*, May 1983. [b]Latest month projected by BEBR. [c]Seasonally unadjusted beginning in December 1982. [d]Definition changed December 1982; percent changes use consistent definition. [e]December 1977=100. [f]April 1982. [g]1976-80=100. [h]1977-81=100. [i]Percent change between March 1982 and February 1983. [j]Percent change between 1982:IV and 1981:IV.

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Service Industries In Illinois

Robert DeLarm and Larry E. White

The service sector, broadly speaking those industries with no tangible products, has experienced a relatively rapid increase in economic activity in the recent past. Data from the last census of services show that, in terms of receipts generated, the Illinois service sector performed above the national average, but only as the result of Illinois's exceptionally strong business and legal services industries. With respect to personal income and employment, the performance of Illinois's business and legal services, though still strong, was not enough to pull the Illinois services sector performance up to the national average. Shifting attention from a static analysis to examine changes in composition and trends, we find the Illinois service sector developing at a much slower rate than that of the nation as a whole. Only in industries that are small or declining in relative significance do we find Illinois appearing relatively strong.

The notion of a "service sector" is often difficult to grasp. Mention agriculture and one can immediately picture vast stretches of cropland — the proverbial amber waves of grain. "Manufacturing" conjures up visions of half-built cars traveling down a Detroit assembly line. "Service industries," however, rarely call forth the same vivid impressions, and quite understandably when one considers that the inherent defining characteristic of the service sector is its "intangible" product or output. Service industries include, for example, lodging services — your room at the Hilton, repair services — work on your Rolls Royce, personal services — the caddies at the country club, and private households — your maid and butler. When we speak of services, therefore, we are referring to those businesses from whom we purchase intangible rather than physical goods.

The service sector is becoming an increasingly important factor in the US economy. As economies develop they pass through different stages, exhibiting specific characteristics unique to each stage. A new or young economy would be supported almost entirely on its agricultural industry. As the economy evolves, it becomes more dependent on its mining and manufacturing. Finally services evolve as the dominant factor in the economy. Empirical evidence supports this theory. As reported by the 1983 industrial outlook, the gross national product, personal consumption, and employment statistics all support the notion of a more dominant service industry. We see that the services sector raised its proportion of gross national product from 60 percent in 1960 to 66 percent in 1981. In 1960, 40.3 percent of all personal expenditures went for services, compared with 46.5 percent for nondurable goods and 13.2 percent for durable goods. By 1981 these figures had changed dramatically. The proportion of all personal expenditures spent on services jumped to 47.4 percent with nondurables dropping to 39.9 percent and durables falling to 12.7 percent. Finally, this trend was evident in the employment statistics where the service sector, over the period 1960 to 1981, increased its share of total employed from 62 percent to 72 percent. Services' proportion of gross national product, percent of total employed and personal expenditures all increased in the 1960–81 period. This trend toward a more dominant service industy warrants an in-depth look at the service sector in Illinois.

Definitions and Analysis Constraints

The definition of services that will be used in the remainder of the article corresponds to that of the 1972 Standard Industrial Classification (SIC). The SIC delineates 15 broadly defined industries as "services." The 15 industries are as follows: hotels, rooming houses, camps, and other lodging places; personal services; business services; automotive repair services and garages; miscellaneous repair services; motion pictures; amusement and recreation services, except motion pictures; health services; legal services; edu-

Economic Change in Illinois *by William Sander* / *p. 4*
Real Estate Developments / *p. 6*

cational services; social services; museums, art galleries, botanical and zoological gardens; membership organizations; private households; and miscellaneous services. Within each industry, establishments can be broken down into more specific groups (see Table 1).

Three particular difficulties arise in attempting a comprehensive analysis of the service sector. The first problem is data. The two major sources used in this analysis are the Census of Selected Services and personal income and employment data from the Bureau of Economic Analysis (BEA). While the BEA provides data on all 15 groups, the economic census provides information for only selected service industries, which encompasses hotels, and so on, personal services, business services, automotive repair, miscellaneous repair, motion pictures, amusements, and subgroups of selected others. Because the two sources do not use the same categories, some statistics cannot be compared. For example, we cannot compare the industry with the highest percentage of service receipts (which is provided by the census) with the industry with the highest percentage of service personal income (which is provided by the BEA.) The concept of largest service industry is also somewhat obscured. The census has begun to rectify this problem. In 1977, the census surveyed "Other Service Industries," which contains those industries included in BEA data but previously excluded from the census. A second problem concerns the Standard Industrial Classification system itself. Like the service sector, the SIC has been changing over time. Most changes are minor. In 1972, a major revision took place within the SIC. While it does not hinder our analysis significantly, unexpected results in 1972 are often attributable to this change, rather than actual economic activity. The final problem is the most important and the most difficult to correct. Establishments are classified as to their major economic contribution, and all business done by that establishment is reported under one classification. For example, suppose a business that is primarily interested in selling computer hardware also has a small divison that develops software for special customers. The main classification is retail trade, where all income, payroll, and so on, is reported, yet they are also involved in the service sector.

Table 1

Standard Industrial Classification (SIC): Services

Code Number	Industry
70	Hotels, Rooming Houses, Camps, and Other Lodging Places
72	Personal Services
73	Business Services
75	Automotive Repair Services and Garages
76	Miscellaneous Repair Services
78	Motion Pictures
79	Amusement and Recreation, except Motion Pictures
80	Health Services
81	Legal Services
82	Educational Services
83	Social Services
84	Museums, Art Galleries, Botanical and Zoological Gardens
86	Membership Organizations
88	Private Households
89	Miscellaneous Services

The opposite problem also occurs. Consider an automotive repair establishment that also sells to those interested in doing their own repair. This business would be classified as a service, but part of its income would actually be retail trade. Using collected data instead of doing one's own survey, one cannot correct for this problem. We must therefore assume that the over- or under-count is consistant so that our comparisons are reasonable.

What does this strict SIC definition of services imply about the absolute size of Illinois's service sector? The most recent census of service industries indicates that Illinois had 96,942 establishments classified as belonging to the "selected service industries," with receipts from these establishments totaling $10.6 billion. Looking at the individual service industries in this general classification reveals that business services in Illinois claimed the greatest proportion of these total receipts with a 36.4-percent share. Legal services claimed the next highest, 12 percent; while automobile services and personal services both accounted for 10.3 percent of the total receipts. The average establishment in the selected service industry had annual receipts of $109,005, of which 35.2 percent was payroll, affording its average employee a salary of $9,785. Such absolute size figures are both difficult to conceptualize and provide little insight into understanding how the Illinois service sector compares to the nation's service sector.

Illinois vs. US: 1979

To make such a comparison, let us look at three distinct measures taken at a single point in time: the level of receipts generated by the industry, the number of workers employed, and the personal income generated. (Statistics on receipts and employment are obtained from the US Department of Commerce, *1977 Census of Services*. The data on personal income is from the BEA.)

The exceptionally strong performance of Illinois's business and legal services was solely responsible for

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Illinois's edge over the national economy in terms of receipts generated. Receipts generated by the service industry as a proportion of gross national product (gross state product in the state figures) showed the Illinois service sector slightly above the national average. In Illinois, receipts as a proportion of total gross state product were 9.62 percent compared to the US average of 9.36 percent. Does this result reflect a general trend across the service sector or was it a driven by a few industries strongly biasing the average? A ranking of each selected service industry's importance in terms of receipts generated shows that the business service sector had the greatest receipts of all selected service industries for both the Illinois and the national economy. In Illinois, business services accounted for 36.8 percent of all service sector receipts compared to the national average of 30.36 percent. The least important selected service industry, again for both the nation as a whole and for the Illinois economy, was miscellaneous repair with 5.37 percent and 6.14 percent of the total Illinois and US receipts, respectively. Dissimilarities in ranking of size show that amusement and recreation both accounted for a smaller proportion of total service receipts at the state level than at the national level, whereas in personal services and legal services these results were exactly reversed. Calculating each individual selected service industry's receipts as a percent of the total gross national product (gross state product) and comparing these to the corresponding national figures leads to the interesting result that the conclusion presented does not generalize across all selected service industries. Of the nine categories delineated by the census bureau as "selected" service industries, Illinois's receipts as a percent of gross state product were larger than the corresponding national figures in only four categories, significantly so in only two. The biggest difference was found in business services where Illinois's business services as a proportion of total was 3.5 percent compared with the national figure of 2.84 percent. The second important difference was seen in the legal service sector where the Illinois proportion of 1.16 percent was greater than the national average of .975 percent. In all other categories the figures showed Illinois either insignificantly different from, or below, the national average. From this it seems plausible to conclude that the aggregate results first presented did not fairly reflect the general underlying trend, but were largely skewed by the business and the legal services, which proved exceptionally important to the Illinois service sector in terms of receipts generated.

In terms of employment statistics, the Illinois economy performed below the national average. When we compare the Illinois and national figures on the number employed in the service sector as a proportion of the total employed, we see a mirror result of the receipts data. Illinois is close to the US average, but now is slightly below, not above, the US mean. Of all persons employed in the US, 18.67 percent were employed in the service sector, whereas 18.32 percent of all persons employed in Illinois were employed by the service sector. Comparisons of employment statistics for each of the selected service industries yields two major conclusions. First, the results are very similar to those reached with the receipt data. Naturally, one would expect a high correlation between the receipts a business generates and the number of workers it employs. A second result found that unlike the receipt statistics, the aggregate result presented does accurately portray a trend found among the individual selected service industries. Ranking the selected service industries with respect to the number employed yields identical ordering for the US and Illinois industries. The largest employer, at both the state and national level, was business services. Of all persons employed in the selected service industries in Illinois, 41.68 percent were employed by business services, compared with 36.25 percent nationally. Other large employers both in Illinois and nationally were personal services and hotels, motels, trailer parks and camps. The smallest employer was dental labs, which employed .54 percent in Illinois and .56 percent nationally. Examining the number employed in each selected service industry as a proportion of those employed reveals that in this case the aggregate result is not skewed by a few exceptionally weak Illinois industries pulling down the state average. With the exception of business services and legal services, every national figure was above the Illinois figure. In business services, this proportion is 3.14 compared to the US average of 2.79, and in legal services the Illinois and national proportions were respectively .50 percent and .46 percent. Exceptionally weak areas in Illinois were hotels, motels, trailer parks and camps with .91 percent versus the national 1.1 percent.

A third measure, personal income data, echoes the conclusions found in receipt and employment data.

Compositional Changes And Growth

The changing pattern of service industry distribution and the growth of each service industry can be seen by examining BEA personal income and employment data, in particular, the distribution of service personal income and service employment in the years 1958 and 1981 and changes that occurred in between. This information will not yield a complete analysis, and so we will also analyze the annual growth for each industry. With these statistics, we hope to provide a better picture of the movement within the service sector in the past 20 years.

Services have been expanding rapidly in the past 25 years. In 1958, the service sector accounted for $2.55 billion of personal income in Illinois and $37.5 billion in the US. This was 10.45 percent of the total in Illinois and 10.50 percent in the US. By 1967, personal income had risen to $4.64 billion and $74.27 billion in Illinois and the US, respectively, or 11.4 percent and 11.9 percent of the respective totals. In that same year, the BEA estimated service sector employment as 687,210 in Illinois and 12,472,000 in the US. These figures represent 15.4 percent of total

(continued on p. 9)

Table 1

County Economic Indicators in Illinois

County	Population Change 1970 - 1980	Property Taxes Per Capita, 1980	Average Wage[a]	Median Years of Schooling[b]
1. Adams	1.1%	$30	$4.00	12.1
2. Alexander	2.1	44	3.67	9.3
3. Bond	15.8	42	3.85	10.9
4. Boone	12.5	43	4.42	12.1
5. Brown	−3.1	85	4.00	9.8
6. Bureau	1.5	50	3.85	12.1
7. Calhoun	3.4	47	4.05	8.8
8. Carroll	−2.6	49	5.45	12.1
9. Cass	6.1	59	4.36	11.6
10. Champaign	3.1	34	3.58	12.6
11. Christian	1.4	25	4.00	11.6
12. Clark	4.3	42	3.43	10.7
13. Clay	3.7	53	3.80	10.0
14. Clinton	15.2	29	3.85	9.1
15. Coles	10.8	37	3.35	12.1
16. Cook	−2.1	30	6.08	12.1
17. Crawford	5.0	38	3.43	12.0
18. Cumberland	13.2	52	3.62	10.2
19. DeKalb	4.1	44	4.38	12.4
20. DeWitt	6.7	83	3.43	12.0
21. Douglas	4.1	54	3.40	12.1
22. DuPage	34.1	48	6.04	12.6
23. Edgar	.6	57	3.60	12.0
24. Edwards	12.3	43	3.20	10.9
25. Effingham	25.7	69	3.45	11.0
26. Fayette	6.8	46	3.68	9.7
27. Ford	−6.8	80	3.60	12.2
28. Franklin	12.7	25	3.13	9.5
29. Fulton	4.3	68	4.88	11.9
30. Gallatin	2.3	48	3.50	9.0
31. Greene	−2.1	54	4.05	11.3
32. Grundy	15.3	81	4.20	12.1
33. Hamilton	5.9	43	3.20	8.9
34. Hancock	0.9	31	3.66	12.2
35. Hardin	9.5	55	3.50	8.7
36. Henderson	7.8	56	3.90	12.1
37. Henry	8.9	34	4.25	12.0
38. Iroquois	1.7	66	3.50	12.0
39. Jackson	11.8	35	3.88	12.3
40. Jasper	5.4	84	3.50	9.4
41. Jefferson	14.1	27	3.30	10.2
42. Jersey	11.1	34	3.70	10.6
43. Jo Daviess	8.1	49	3.80	11.9
44. Johnson	27.5	49	3.60	9.4
45. Kane	10.9	34	3.79	12.2
46. Kankakee	5.5	29	5.29	11.8
47. Kendall	41.1	43	4.00	12.3
48. Knox	1.1	44	4.90	12.2
49. Lake	15.0	38	5.87	12.4
50. LaSalle	−2.0	41	3.89	12.0
51. Lawrence	1.6	43	3.92	11.8
52. Lee	-6.7	45	4.28	12.1
53. Livingston	1.7	43	3.10	12.1
54. Logan	−5.2	60	5.70	12.0
55. McDonough	1.6	53	5.36	12.3
56. McHenry	32.4	35	5.29	12.2
57. McLean	14.1	38	3.70	12.3
58. Macon	5.1	34	3.13	12.1
59. Macoupin	10.8	47	3.43	10.9
60. Madison	−1.3	34	3.85	11.5
61. Marion	11.6	18	3.80	10.7
62. Marshall	8.8	66	3.54	12.1
63. Mason	20.5	67	4.65	11.6
64. Massac	7.9	60	3.50	9.6
65. Menard	20.8	81	4.75	12.0
66. Mercer	11.5	70	4.30	12.1
67. Monroe	6.8	46	3.84	10.4
68. Montgomery	4.7	33	3.43	11.3
69. Morgan	3.7	50	4.36	12.1
70. Moultrie	9.7	52	4.66	11.3
71. Ogle	8.1	50	5.36	12.2
72. Peoria	2.6	47	3.91	12.1
73. Perry	9.9	32	3.90	9.5
74. Piatt	6.9	54	3.50	12.2
75. Pike	−1.5	44	4.40	11.8
76. Pope	14.2	43	3.50	8.8
77. Pulaskie	1.1	56	3.67	8.8
78. Putnam	21.5	55	3.85	12.1
79. Randolph	13.5	42	3.83	10.1
80. Richland	4.5	34	3.35	11.6
81. Rock Island	−0.5	25	4.63	12.1
82. St. Clair	−6.9	27	3.85	11.0
83. Saline	6.4	26	3.50	9.4
84. Sangamon	9.1	28	3.93	12.2
85. Schuyler	2.8	61	4.00	12.0
86. Scott	.8	64	4.36	10.5
87. Shelby	5.9	52	3.80	11.1
88. Stark	−1.6	98	3.85	12.2
89. Stephenson	1.4	35	3.70	12.1
90. Tazewell	12.2	23	3.88	12.1
91. Union	4.9	25	3.67	9.4
92. Vermillion	−1.9	42	3.54	11.6
93. Wabash	6.8	47	3.50	12.0
94. Warren	1.6	43	3.50	12.2
95. Washington	12.3	65	3.85	8.8
96. Wayne	6.2	39	3.20	9.9
97. White	3.2	34	3.20	11.9
98. Whiteside	4.9	36	4.75	11.9
99. Will	30.9	29	3.72	12.1
100. Williamson	15.3	27	3.54	11.0
101. Winnebago	1.7	16	3.50	12.1
102. Woodford	18.9	35	5.15	12.1

[a] Average wage for secretaries and janitors, 1982. [b] Median years of schooling for those 25 years and older, 1970.

Sources: US Department of Commerce, *County and City Data Book 1977* (Washington, DC: US Government Printing Office, 1980); Illinois Department of Commerce and Community Affairs, *Illinois Data Book 1982;* Illinois Department of Revenue, *Illinois Property Tax Statistics, 1980;* and unpublished data collected by the Illinois Department of Commerce and Community Affairs.

Economic Change in Illinois

William Sander

Economic Trends

Between 1970 and 1980, the state's population increased by 2.7 percent. The range within the state was between a 6.9-percent of decline in St. Clair County and a 41.1-percent increase in Kendall County (Table 1). In general, there was rapid population growth in the southern third of Illinois and the counties surrounding Chicago, and there were substantial declines in population in Chicago (10.8 percent) and East St. Louis (21.1 percent).

Economic change within Illinois derives from short-term changes in the national economy as well as long-term changes in the economic attractiveness of sites. The long-term changes are, in turn, a product of the importance of various factors that affect industrial location. Historically, the waterways and railroads defined the pattern of economic growth within the state. During the last few decades, however, the truck has become the primary transporter of goods, and industry is less drawn to locations along the waterways and rail lines.

The relative decline in the importance of the railroads and waterways in the location of industries has increased the relative importance of other factors such as power rates, labor costs, and taxes. As Tables 1 and 2 show, there is substantial variation in these factors within the state. The per capita property tax levy varies several fold, and the wage rate for two jobs varies almost two fold. Power rates vary as well. The Commonwealth Edison rates in northeastern Illinois, in particular, increased relative to downstate rates between 1970 and 1980. The areas served by Illinois Power in southern Illinois are particularly cheap power sites.

Since labor costs have an important bearing on industrial development, the wage data (Table 1) merits further discussion. The data presented is the average hourly wage for two occupations, janitors and secretaries, in a county. The Illinois Department of Commerce and Community Affairs collected this data for their industrial profiles. They also collected wage data for two other jobs that tend to be unionized occupations. The janitor and secretary data, though, provide interesting indications of labor market conditions within a county.

Data on schooling is also presented in Table 1. To some extent, schooling indicates the quality of labor within the state. By regressing the wage data on schooling, I found that schooling had a statistically significant effect on the wage.[1] That is, secretaries and janitors earned more where the quality of labor was higher. This indicates that workers can command a higher wage where the productivity of labor is high. It could also indicate that janitors and secretaries were more productive since they had acquired more schooling.

It could not be shown that property taxes, percent of employees in manufacturing, schooling, or wages had any statistically significant effect on county population changes between 1970 and 1980. Since industrial location decisions are long-term, this result is not unexpected.

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Implications

I would speculate that (1) southern Illinois's growth was a product of its relatively cheap labor and power and (2) that growth in the non-Chicago northeast was a product of Chicago-oriented industries taking advantage of the Chicago urbanization economics and avoiding the costs of an inner-city site such as high rents, high taxes (Chicago has a relative high sales tax, utility tax, and head tax), and, to some extent, low quality labor (the product of the Chicago public school system is relatively low). I would also speculate that economic development within Illinois is closely linked to the quality of its schools. Industries need workers with increasingly complex skills and knowledge. That is, the growth industries will tend to locate where the stock of human capital, via good schools, is high.

Note

1. The regression coefficient was .21 and the t-statistic was 3.89. The intercept was 1.6 and the R^2 was .12.

Table 2

Power Rate Index, 1970–1980 (State average equals 100 for 1970 and 1980, respectively)

	Power Rate Index	
Utility	1970	1980
Commonwealth Edison	103	114
CICCO	97	106
CIPS	109	102
Illinois Power	91	78

Source: Moody's Public Utility Manual, 1974 and 1981 editions.

REAL ESTATE DEVELOPMENTS

Inducements to Sell or List: A Major Change in Enforcement Policies

Charles R. McGuire

As of 1 August 1983, a long-standing policy of nonenforcement of the "inducements" provision of the Illinois Real Estate Brokers and Salesman Act was changed. On that date, the Department of Registration and Education of the State of Illinois, charged with administration of the Act, began enforcement of the provision, and if the legal opinion upon which the policy change is based is any clue, the enforcement is likely to be quite strict. According to an attorney who interpreted the provision for the department, the change is likely to "send shock waves through the industry."

One of the lesser-known provisions of the Brokers and Salesman Act, the "inducements" provision, Section 5732 (20) of the act, prohibits inducements to clients and customers to buy or list property with a particular broker. That section prohibits "using prizes, money, free gifts or other valuable consideration or inducements to (1) secure customers to purchase, rent or lease property . . . or (2) secure clients to list properties with the registrant." The statute exempts prizes or gifts which are not conditioned upon purchase or lease, and further exempts "guaranteed sales plans," although those plans are closely regulated by the act. Violation may subject the registrant to suspension, revocation, or refusal to renew an active broker's, broker-salesman's, or salesman's license.

Since its adoption in 1979, that section has not been enforced. As a policy determination, the Department of Registration and Education has refused to bring actions or complaints based on the section, primarily because the real estate industry was suffering as a result of the ongoing downturn in the economy in general and in the real estate industry in particular. The department felt that the downturn justified a failure to enforce the statute, since many brokers were using promotional devices to secure both listings and purchasers during that period.

In May of 1983, a series of letters and complaints reached the department regarding a promotional plan introduced by the recently merged Sears, Roebuck and Company–Coldwell-Banker real estate firm. As a result of those complaints, the department announced plans to begin enforcing the "inducements" provision as of 1 August 1983.

Because of the wide variety of promotional plans offered by brokers throughout the state, and because of the surface complexities of the statute itself, brokers should be cognizant of the act and of the current interpretation of the inducements provision by the department. On 1 July 1983, a copy of the opinion of the staff attorneys of the department was mailed to all brokers. But even with such an opinion in hand, it may be difficult for some brokers to fathom the "legalese" of the lawyers or to avoid too optimistic an interpretation of the opinion itself. The purpose of this article is therefore twofold: first, to give some guidance in interpreting the opinion and its background; and second, to help brokers avoid too optimistic an interpretation, since the act is likely to be very strictly construed and enforced.

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Background: Employees, Socks, and Matches

During the spring of 1983, the Coldwell-Banker brokerage, newly allied with the giant Sears, Roebuck retail firm, began an aggressive marketing program designed to attract both new real estate listings and new purchasers of listed homes. Coldwell-Banker, the nation's largest real estate firm, had been acquired by Sears in October of 1981, within days of Sears' acquisition of Dean, Witter, Reynolds & Co., one of the nation's largest stockbrokerage houses. On 20 July 1982, Sears integrated both Dean Witter offices and Coldwell-Banker offices into its retail stores in eight cities as a "test market," thereby creating the first "Financial Service Centers." The test market was quite successful, and as of 1 January 1983, Sears began to expand the "Financial Service Center" concept to other stores. Nationwide advertising began emphasizing the traditional customer trust in the Sears name.

While the Coldwell-Banker plan to attract new listings and customers is many faceted, two principal avenues were chosen that are relevant to the consideration of the "inducements" policy of the Department of Registration and Education: first, discounts on brokerage services were offered to all of Sears' employees, numbering almost 400,000 persons; and second, persons purchasing a home through Coldwell-Banker became eligible for discounts on Sears retail merchandise. Only the first issue was considered by the department in its opinion regarding inducements, though the second issue is also highly relevant.

The first discount was made available to employees of Sears and Sears' subsidiaries through internal memoranda. The eligible employees received a discount of 10 percent of Coldwell-Bankers's gross revenue upon either the sale or purchase of a home through the firm. Gross revenue was defined as the commissions that would be received by Coldwell-Banker if the transaction were not subject to the discount, after payment of commissions to participating brokers. Internal memoranda correctly stated that the discount could amount to hundreds of dollars.

The second discount, though perhaps more controversial, was not included in the department's opinion, though for the simple reason that it was not yet offered in Illinois. This discount, termed the "Home Buyer's Savings Program," gave any person who purchased a home through Coldwell-Banker a coupon book containing a large variety of discounts on Sears retail items. The discounts ranged from 10 percent on furniture and carpeting to 25 percent on paint and kitchen cabinets. The program also gave free socks to the entire family. The discounts were good for a period of six months after closing and were available in 11 states, not including Illinois. According to a Sears spokesperson, the program would be extended to other states, including Illinois, as soon as possible.

A third program, unrelated to Sears, had also become controversial. An Illinois real estate broker had begun offering a plan, called the "M.A.T.C.H." plan, whereby the broker would pay a portion of the purchaser's mortgage payments for up to 24 months after closing in order to secure clients. The broker had requested and had received permission from the department to offer the plan, even though it arguably violated the inducements provision. The Real Estate Commissioner had okayed the plan on the grounds that it was necessary during the economic downturn.

The Sears–Coldwell-Banker "Home Buyers Savings Plan" was announced in May of 1983. The employee discount was made public in April. Within days complaints were made by other brokers concerning the plans. On 31 May, the department made a decision holding that the employee plan and the M.A.T.C.H. program violated the "inducements" portion of the act. That decision was effective 1 August, though it was publicized through a mailing on 1 July. The prior notification was designed to provide ample time to allow for advertising and committments of the broker already made.

The Opinion

The opinion of the staff attorneys was, at least on the surface, aimed solely at the 10-percent employee discount made by Coldwell-Banker. The opinion also expressly reconsidered the M.A.T.C.H. program and found that it, too, constituted an inducement under the statute. The "Home Buyers Savings Program" was not expressly mentioned in the opinion, though it seems quite obvious that that program is also prohibited by the act.

The operative portion of the opinion is quite broad. The end result is set out as follows:

> The Coldwell-Banker program, the Starck Realtor M.A.T.C.H. program, and *every* other plan whereby a realtor makes some type of offer to a client, beyond supplying traditional real estate brokerage services is prohibited under this Act; and every realtor or salesman who participates in such a plan is in violation of the Act and should be subjected to appropriate licensure discipline. (emphasis in original).

The opinion was accompanied by an order from the director of the department stating that unilateral enforcement of the inducements provision would begin on 1 August.

The general counsel of the Department of Registration and Education has stated further that the inducements provision clearly covers all such schemes:

> Accordingly, we interpret the [inducements] provision to prohibit *any scheme by which a salesman or broker communicates his fees* other than through a simple statement of the commission or flat fee charged to his client for the service rendered. (emphasis added).

The opinions of the lawyers for the department are not law. They are merely expressions of the department's view of the law, a view that must await a court test for vindication or denial. But from the standpoint of real estate brokers, this enforcement policy is crucial, since all such programs offered by brokers are "at risk," subject to enforcement actions and the time and expense of defense of such charges.

While the opinion seems broad and pervasive, several issues of interpretation of the opinion itself remain. Several of those issues are important to determine the legality of existing plans offered by brokers.

What plans are covered?

The controlling language of the opinion indicates that all plans, other than traditional, commission-based real estate transactions or flat-fee transactions, are covered by the act. Thus, if a broker offers anything else, aside from his real estate services, he is violating the act. This would include gifts, rebates or discounts, or mortgage payments.

This conclusion is confirmed by analysis of the opinion. The staff attorneys, in interpreting the statute as applied to the Coldwell-Banker employee discount plan, relied on language in the statute which prohibited the use of "other valuable consideration," along with "prizes, money, [or] free gifts," as inducements to sell or lease. The term "other valuable consideration" was interpreted to cover "an almost endless range of schemes that provide benefit to one or both parties in a real estate transaction." The general counsel's opinion agrees, stating that there is no indication in the statute that the act was "intended to be more restrictive than its common ordinary meaning in contractual law." The term "inducement" was similarly interpreted to mean "the benefit which a party is to receive for entering into a contract," the standard dictionary definition.

While other implications are not expressly considered by the opinion, it is important to realize that the act is aimed at more than purchases of real estate. The act also forbids inducements to list, rent, or lease. Thus, plans which offer an inducement to a prospective tenant are also illegal under the act. Many lease programs have offered free gifts, such as televisions or other appliances, utility payments, or free month's rent, or other consideration to prospective tenants. Those programs are now also void, it would appear, if the program is offered by a licensed real estate broker or salesperson.

The virtually inevitable conclusion from the language of the opinion is that any program whereby a broker or salesman offers anything of value at all in connection with a sale, listing, or rental, in order to provide an incentive, stimulus, or motivation to purchase, list, or rent property, is covered by the act and may cause disciplinary action against the broker or salesperson. It would seem that the broker or salesman may only offer traditional real estate services in return for a commission or a flat fee.

What of employee discounts?

Since the Coldwell-Banker program involved employee discounts, of course the type of discounts offered in that program are covered. But the opinion went further, stating effectively that *all* employee discounts are covered by the statute, without exception.

As far as the Coldwell-Banker program was concerned, the opinion said that the discounts there were far more than the ordinary type of employee discount. The offer was made to all employees, not just of Coldwell-Banker, but of Sears and all Sears subsidiaries. But the opinion was not content simply to distinguish the Coldwell-Banker program from other employee discounts, but rather extended the enforcement policy to all types of employee discount programs.

The opinion said that there is simply no exception for such programs in the act. While some sort of reward or discount to loyal employees is common in the industry, there is "no hint of an exception for employee benefit programs" in the statute. As a result, traditional "breaks" given to employees of brokers are included in the statutory ban.

Is advertising regulated?

While the ban on inducements, if perhaps harsh, is at least straightforward, the language of the general counsel's opinion indicated that advertising and other forms of communication may also be regulated by the statute. To reiterate, that opinion prohibited "any scheme by which a salesman or broker communicated his fees other than a simple statement of the commission or flat fee charged." On one hand, this may be simply a somewhat inartful statement of the prohibition of inducements in general. On the other hand, the language may indicate a perceived duty on the part of the department to regulate far more than the existence of inducement plans, but also the content of advertising that offers the inducement.

For an inducement to be effective, it must be communicated to the prospective seller, buyer, or tenant. An inducement is, after all, simply an additional motivating factor, and the inducement cannot motivate if it is kept secret. The statute prohibits *use* of inducements, and clearly the most effective use of an inducement is to advertise it, so that the prospective contracting parties will be motivated.

The opinion could have simply outlawed the use of inducements in advertising. But the general counsel's opinion seems to have gone further than that, by prohibiting any content beyond a mere statement of the commission or flat fee. Such a blanket prohibition will be most difficult to enforce and may well be unconstitutional under recent Supreme Court opinions regarding freedom of speech in commercial arenas.

In part, however, the general counsel's statement is a recognition of the complexities underlying the simplicity, however. This is true since the statute and the opinion effectively force competition back to the area of price alone.

Impact of Enforcement: Price Alone

Even though price-fixing among real estate brokers, even through real estate associations, has been subject to the federal antitrust laws and illegal since 1980, true price competition among brokers has simply not taken place. It is a rare broker who will enter into a price-cutting strategy in order to gain clients. Competition between brokers has taken place on the level of service, and to a lesser extent, in the promotional schemes devised during the last few years, now characterized as "inducements."

Inducements are, to a large extent, only a method of cutting prices without cutting prices. A broker may continue to charge the "prevailing" commission rate for his area, but may lower his effective price by granting discounts or rebates, or by giving gifts or help with mortgage payments. On the surface his charges remain the same — but upon close analysis, his prices are lower than the prevailing charges. Inducements are in that sense, price competition, but one step removed.

By eliminating inducements, the department has effectively forced the broker who wishes to compete to choose between competition based upon service alone, the traditional method of real estate competition before 1980, and entering into commission-cutting programs. While many, perhaps most, brokers will make the first choice, inevitably there will be some brokers who will enter into direct price competition by lowering commission rates or charging flat fees. The extent of price competition clearly depends on the number of brokers willing to enter this untried and somewhat risky form of competition and on the response of the real estate community to price competition.

It may well have been this area to which the general counsel was referring in his "communication" statement, albeit in euphemistic and veiled terms. Price competition is permissible, but competition in nonprice inducements is not. Thus, the department seems to be forcing, whether purposefully or not, pure price competition within the real estate industry. It is problematic whether this is what the legislature intended when it enacted the inducements provision.

Pure price competition has been generally avoided in many other professions, such as law, medicine, and pharmacology, generally on the grounds that such competition demeans the profession and leads to a loss of professionalism. Recent developments in law and other fields had indicated that this avoidance is on its last legs, and price competition has been introduced in many such professional areas. Whether such a loss in professionalism is a necessary accompanying factor awaits the verdict of time. But it clearly appears that the combination of the 1980 Supreme Court decision outlawing price-fixing in the real estate industry and the new enforcement policies of the Department of Registration and Education make such competition inevitable.

Conclusion

As a practical matter, real estate brokers and salesmen should be aware that all inducements to list, purchase, or lease are now subject to disciplinary action by the Department of Registration and Education. All types of nonprice competition, except traditional competition on the basis of quality of service, are made illegal by a statute on the books since 1979. That statute will be strictly enforced by the department after 1 August 1983.

In the longer run, real estate professionals should reassess their position regarding pure price competition. It appears highly likely that true price competition has been given one more push towards reality by the department's decision to enforce strictly the inducement provision of the Brokers and Salesman Act.

(continued from p. 3)

Illinois employment and 16.9 percent of total US employment. In 1981, Illinois service personal income was $16.8 billion with 990,975 employed. US estimates were $316.7 billion and 20,055,000, respectively. These figures represent 12.7 percent of Illinois personal income, 13.2 percent of US personal income, 20.5 percent of Illinois employment, and 20.6 percent of US employment. The service sector has become more important both to Illinois and to the US, but the shift to services has been greater nationally. While Illinois personal income lagged only .4 percent behind the US in 1981, this represents $67.2 million.

The shift from tangible industries to services has been gradual, but certain industries have been leaders. In 1958, in both Illinois and the US, medical services, personal services, and business services generated the highest percentage of personal income among service industries. By 1981, personal services had lost ground, business services had moved from third to second, and legal services had advanced to the third leading personal-income-generating industry. Employment figures give a similar picture. In 1967, private households, medical services, and business services dominated service employment in the US, while medical services, nonprofit organizations, and business services were the top three catagories in Illinois. Changes occurred between 1967 and 1981 so that medical services, business services, and nonprofit organizations were the service industries with the highest percentage of total employment in both Illinois and the US.

The relative position of certain industries appears similar for Illinois and the US in the key years of 1967 and 1981, but the examination of each particular industry uncovers some differences. For the service sector as a whole in both Illinois and the US, the percentage of total personal income and total employment increased every year. But the rate of this increase has generally been greater in the US than in Illinois. This indicates that other industries, particularly manufacturing, still play a more dominant role in Illinois than in the US as a whole.

In the US, medical services, legal services, and business services have almost continuously commanded a higher percentage of total personal income. Medical services gained in every year except 1977, while legal services fell six times since 1958, but never two years in a row. Business services' claim on total personal income dropped only in 1971, but it was 1975 before it had resumed its 1970 level. While these changes may seem trivial, it should be remembered that these three industries account for more than half of US service personal income. Those service industries that have declined in importance in the US are personal services and private households, which have declined nearly every year, and nonprofit organizations, which reached its peak in 1971, but has declined dramatically ever since.

Comparing this distribution to that in Illinois makes one somewhat optimistic. Just as in the US, business services and medical services increased their claim on total personal income nearly every year. Legal services fluctuated more in Illinois, but only once, in 1974 and 1975, did its percentage fall for two consecutive years. In a direct comparison of the US and Illinois, we see that business services generated a higher percentage of total personal income in Illinois, but the difference has been shrinking, especially since 1977. In terms of medical services, Illinois's percentage was consistantly lower than the US until 1980. For the last two years of the analysis, however, medical services was relatively more important to Illinois. Legal services has also been relatively larger in Illinois, by nearly .2 percent. Those industries that contribute a steadily lower percentage of total personal income provide a less optimistic result. Personal services is the most graphic example of this. It was relatively more important in Illinois from 1958 until 1971, but less important since. This indicated that personal services grew much faster (or declined more slowly) in the US than in Illinois. The cases are similar for private households and nonprofit organizations, but to a less radical degree.

Employment data yields similar findings to that of personal income. Service employment became more important relative to other industry groups every year, but to a greater degree for the US as a whole. Business, medical, and legal services lead this increase in both Illinois and the US, with each being relatively more important to Illinois than to the US. Personal services, private households, and nonprofit organizations all showed slow growth or decline. Personal services' decline in importance was especially strong in Illinois. One difference is that service employment as a percentage of total employment is much higher than service personal income as a percentage of total personal income; service jobs are relatively lower paying than jobs in other industries.

Total personal income in nominal terms grew every year in both Illinois and the US. In real terms, however, total personal income fell in the US in 1974, 1975, and 1980, while it declined in Illinois in those years and in 1979. Total employment fell only in 1975 in the US but in Illinois in 1970, 1971, 1972, 1975, 1980, and 1981. All three measures show generally slower growth since 1975 than before. In terms of total services, the only declines were 1969 US employment, 1974 and 1980 US real personal income, and 1974, 1975, 1979, and 1980 Illinois real personal income. The other characteristic of total service growth is that it generally surpasses total growth in every catagory.

Analysis of growth patterns helps to demonstrate why medical services, business services, and legal services were generally found to dominate the distribution of service personal income and employment in recent years. Personal services, private households, and nonprofit organizations were important earlier, but lost ground. Medical services' growth has been especially strong. It is the only industry in the US never to have exhibited a decline in real personal income; and it declined in Illinois only in 1979. Medical service growth has been steady, nominally exceeding 10 percent in both Illinois and the US. Though relatively larger, with respect to total personal income and employment in Illinois, growth has been stronger in the US. Since 1977 the US growth rate has exceeded that for Illinois in every catagory. Legal services has been less stable. Growth has been steady in the US, with the only decline in terms of real personal income. However, all catagories exhibited a much smaller growth rate since 1975. The pattern is somewhat more cyclical in Illinois, with declines coming in 1968–69, 1974–75, 1978, and 1981 in terms of real personal income. Legal services is another industry in which US growth has generally been greater than Illinois's. Employment growth was greater in Illinois only in 1974, 1975, 1976, and 1979. Personal income, both nominal and real, grew more in Illinois only three times since 1967, and three times prior to those. Business services' growth rates are similar to that of medical services. Both are relatively more important in Illinois. Both exhibit nominal growth every year and real growth (real personal income and employment) nearly every year in the US. In Illinois, however, business service employment declined in 1971, and real personal income in 1971, 1972, 1974, and 1980. When comparing the US and Illinois, Illinois's growth exceeds the US in employment only in 1975 and both personal incomes in only 1973, 1975, and 1976. These figures make it clear that for those industries that dominate the distribution of service industries, the US as a whole is growing considerably faster than is Illinois, and especially recently when the shift to the service sector has been attracting publicity.

For those industries whose prominence has declined, growth has been negative, especially in real terms, in recent years. US personal service real personal income and employment have fallen since 1975, with a brief resurgence in 1977 and 1978. Illinois is similar in that real personal income has been falling, with the decline beginning earlier, in 1968. However, employment has grown modestly in Illinois in 1980 and 1981. Since employment rose in 1980 and 1981 for personal services, it indicates that employees are concerned more with nominal income, even in light of declining real income. The decline in private households has been more extreme. In the US, it began in 1968 for real personal income, but in 1961 for employment. Similar things have happened in Illinois. In these industries, we find that growth, or the lack of it, is more apparent in Illinois than the US. In terms of personal services, Illinois employment grew faster or fell more slowly than the US in 1972, 1974, 1978, 1980, and 1981. Real personal income growth was greater in 1974 and 1980 in Illinois. But in those years, and the others, the differences are much smaller than for other industries studied. This is even more evident with private households. The growth pattern since 1971 is nearly identical for all catagories, differing by less than .1 percent. Nonprofit organizations is one industry in which Illinois's growth has been greater than that of the US. In terms of nominal personal income, nonprofit organizations have consistently exhibited growth, but most of it has been a result of inflation. Real personal income fell in 1970, 1974, 1975, 1976, and from 1979 through 1981 in the US, and identically in Illinois except for 1976 and 1978. Since 1967, employment has fallen at a slower rate in Illinois, and when growth occurred it was rarely more than 1 percent. Nonprofit organizations actually grew prior to 1967, but have declined ever since. When comparing Illinois and the US, only eight times did the US gain more in personal income and only three times in employment.

Other industries showed some interesting trends. Auto repair services grew quickly in the early and mid–1970s, but fell sharply in 1980 and 1981. The years of decline were a period when people began trading older, low milage automobiles for new ones, and they coincided with the auto industry's rebate programs. Miscellaneous repair services experienced similar effects, but without the sharp 1980–81 downturn. The rapid rise in private educational cost and attempts by private schools to survive on limited personnel is evident in the employment data. Private educational services employment grew significantly from 1967 until the mid–1970s, but then either declined or rose by less than 2 percent in Illinois and the US. A final example is the hotel and lodging industry. This industry is near the middle of the service industry distribution and exhibited generally limited growth. But in real terms, Illinois growth exceeded US growth in only 1972, 1974, and 1977.

Table 2

Illinois Service Employment Growth

		SIC Code Number														
Year	Total	70	72	73	75	76	78	79	80	81	82	83	84	86	88	89
1968	3.1	.6	−0.0	3.1	−1.5	−1.7	.4	2.3	4.8	1.7	6.2	0.0	4.8	3.0	−2.5	19.0
1972	1.6	4.6	−13.9	1.7	1.3	−7.7	2.3	2.2	6.5	−3.7	2.0	0.0	−.8	2.4	−1.9	3.8
1977	3.7	8.3	−.8	6.8	5.2	5.8	−.5	5.8	6.0	6.7	−2.7	.4	12.0	−3.0	4.0	7.1
1978	3.3	.8	2.6	6.8	3.5	−3.2	−2.7	−4.4	6.6	6.9	2.8	−1.9	−10.3	−.7	−1.9	5.2
1979	1.3	−.3	−.4	4.5	7.2	7.3	−4.0	−.1	2.3	7.6	−3.0	−2.9	6.7	.1	−7.7	8.4
1980	1.5	−7.5	.9	4.2	−3.3	1.2	−6.3	6.5	3.7	10.6	−5.2	4.5	−2.1	2.8	−8.8	1.1
1981	2.8	−1.8	1.8	2.8	.1	−3.1	2.5	−.6	4.0	5.0	3.7	9.8	9.4	−.1	.5	3.5

Table 3

Illinois Service Personal Income Growth

		SIC Code Number														
Year	Total	70	72	73	75	76	78	79	80	81	82	83	84	86	88	89
1959	8.0	-7.0	2.7	11.7	10.5	-3.3	2.3	2.4	10.3	15.7	9.0	0.0	6.8	12.6	1.4	1.6
1963	5.1	5.0	3.4	6.2	6.8	6.4	2.8	5.5	10.7	6.5	9.3	0.0	32.4	1.9	−.3	2.7
1967	8.9	5.1	4.4	8.2	10.1	3.3	7.5	7.1	11.5	4.4	8.7	0.0	22.0	14.7	2.8	12.0
1972	6.6	11.7	−5.8	3.1	7.2	4.2	6.5	7.2	8.4	9.7	13.5	0.0	15.1	5.7	1.6	7.9
1977	11.4	17.4	9.0	15.9	12.8	13.2	20.5	11.5	12.0	12.5	2.2	7.9	18.1	6.7	10.9	11.6
1978	10.0	11.4	6.9	12.3	11.2	2.8	13.1	−.8	11.4	6.9	10.3	4.5	−2.1	7.6	5.1	12.2
1979	10.4	8.7	5.3	17.1	10.5	11.8	10.2	4.7	10.0	11.9	−.5	6.7	8.5	7.7	3.4	15.1
1980	11.2	3.2	8.5	12.0	2.8	13.5	−2.2	6.8	14.4	16.2	1.6	14.4	7.1	10.0	1.9	9.6
1981	10.6	3.5	7.0	12.2	7.4	5.0	15.2	−.7	13.7	7.4	8.0	15.1	17.9	7.3	6.6	10.5

It is not just the larger industries for which Illinois growth falls short of the US, but moderate-sized ones as well.

It becomes evident from viewing yearly growth rates that Illinois is making the transition to the service sector much more slowly than is the US as a whole. While the relative importance of most service industries is similar in both Illinois and the US, the larger industries have been growing faster in the US. The only industries in which Illinois appears healthier are small or predominantly declining industries. If this trend continues throughout the 1980s, the economic woes of Illinois will only be compounded, not improved.

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ILLINOIS BUSINESS INDEXES

	Percent Change May 1982-May 1983	May 1983	April 1983	March 1983	February 1983	May 1982	April 1982
Coincident indicator (1969=100)	-13.55	98.40	98.69	102.65	102.33	113.96	113.53
Employment-manufacturing (in thousands)	-6.89	967.6	949.8	947.7	945.7	1039.2	1047.0
Average weekly hours-manufacturing	2.3	40.1	40.1	39.8	39.8	39.2	38.8
Weekly earnings-manufacturing	5.04	$383.76	$388.17	$378.10	$377.30	$365.34	$359.68
Help wanted advertising-Chicago (1967=100)[a]	-2.2	44	39	42	42	45	44
Help wanted advertising-St. Louis (1967=100)[a]	5.0	42	39	37	38	40	38
Retail sales (in millions)[b]	6.59	$4,835	$4,496	$4,794	$4,153	$4,536	$4,393
Coal production (in thousands)	-11.56	4,674	4,692	5,626	5,061	5,285	5,607
Petroleum production (in thousands)	17.93	2,480	2,400	2,500	2,300	2,103	2,138
Vendor performance, (percent)[c]	78.0	52	52	50	42	29.2	28.5
Building permits (in thousands)							
Residential housing units	47.03	2.867	2.586	2.093	.829	1.95	1.11
Value of residential housing	72.17	$161,979	$132,459	$112,227	$46,538	$94,081	$55,233
Value of nonresidential construction							
Industrial buildings	119.56	$30,534	$6,498	$6,114	$9,881	$13,907	$34,439
Office, banks and professional buildings	-39.01	$22,319	$26,682	$27,768	$23,161	$36,592	$31,175
Stores and other mercantile buildings	-49.37	$31,283	$13,997	$10,306	$3,853	$61,787	$10,802
Other[d]	29.4	$2,830	$2,295	$3,463	$2,513	$25,300	$32,653
Consumer price index							
North Central US[e]	4.61[f]	–	161.2	–	159.8	–	154.1
North Central/population more than 1,250,000[e]	5.41[f]	–	163.6	–	162.4	–	155.2
North Central/population 385,000 to 1,250,000[e]	4.19[f]	–	161.6	–	159.6	–	155.1
North Central/population 75,000 to 385,000[e]	4.03[f]	–	157.3	–	155.8	–	151.2
North Central/population less than 75,000[e]	3.13[f]	–	158.1	–	156.6	–	153.2
Chicago (1967=100)	2.99	296.3	295.3	293.7	293.7	287.7	280.2
St. Louis (1967=100)	3.40	295.4	–	293.2	–	285.7	–
		1983:I	1982:IV	1982:III	1982:II	1982:I	1981:IV
Personal income (in millions)	5.0[g]	$142,988	$141,560	$140,832	$138,355	$136,518	$136,636

[a]The Conference Board, *Help Wanted Advertising*, June 1983. [b]Latest month projected by BEBR. [c]Seasonally unadjusted beginning in December 1982. [d]Definition changed December 1982; percent changes use consistent definition. [e]December 1977=100. [f]Percent change between April 1982 and April 1983. [g]Percent change between 1982:I and 1983:I.

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Trends in Illinois Personal Income 1967–1981

Dave Mandy

We are often concerned with examining an economy's overall performance, and personal income is one statistic that is an effective measure. There are many other summary statistics that are commonly cited as measures of overall performance, including the unemployment rate, gross national product, and the inflation rate. Personal income, however, posseses certain characteristics which some think make it a better measure than these other statistics. This article examines personal income data for Illinois in an effort to measure the performance of the Illinois economy and to compare this performance with neighboring states and the nation.

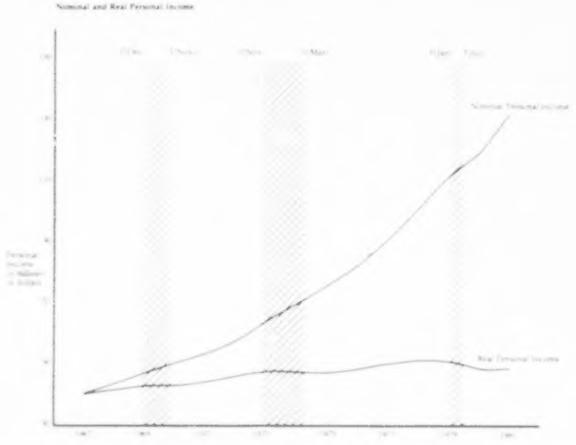
Two major characteristics of personal income make it a useful measure of economic welfare (the economic well-being of a society): First, data on personal income is readily available at both the state and federal levels; Second, personal income is actually a variant of the gross national product measure but it is superior because it embodies certain adjustments that yield a figure much closer to the income individuals actually have to spend as they see fit. Specifically, personal income includes all wages, salaries, and other labor income plus proprietors' and rental income, plus dividends, interest, and transfer payments, less payments made by individuals for social security and certain other pension funds. To get gross national product from personal income, we must add in certain business taxes, retained earnings, and depreciation allowances and subtract transfer payments and federal interest payments.

The Record in Illinois

The Chart depicts movements of personal income in Illinois for the years 1967–81. Nominal personal income rose over the entire period with a slowdown in the rate of growth visible in 1980. This slowdown corresponds to the recession we experienced in the first half of 1980, which lasted from a peak in January 1980 to a trough in July 1980 according to the National Bureau of Economic Research (NBER). Examining nominal data can be misleading, however, since nominal data is measured in current dollars, and any general inflation that occurred during the period is reflected in it. This makes it a poor measure of welfare since it is changes in the purchasing power of personal income that really determine whether individuals have experienced a gain or loss of welfare.

The second line shown in the Chart is real personal income for Illinois. Real personal income is obtained by adjusting nominal personal income for inflation by using some measure of changes in prices. The measure used here is the consumer price index (CPI) for the US, which is compiled by the Bureau

Chart
Nominal and Real Personal Income for Illinois, 1967–81.



Note
P and T indicate peaks and troughs of the business cycle for the US, as defined by the NBER. Shaded area denotes a period of recession.
Sources: BEA, BLS. Index year for the CPI used is 1967 (1967=100).

Real Estate Developments / *Page 6*
Breaking Up AT&T / *Page 8*

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of Labor Statistics (BLS). Real personal income is obtained by dividing nominal personal income by the CPI and then multiplying by 100.

Examination of the real series shown in the Chart reveals that much of the increase in nominal personal income has been due to inflation and does not represent a large increase in the purchasing power of the residents of Illinois. In fact, real personal income (measured in 1967 prices) increased by only $8 billion from 1967 to 1981 — from $40.7 billion to $48.7 billion. This represents an increase of 19.7 percent over 14 years, or an average annual rate of increase of 1.3 percent. The real data also better illustrate the recessions we have experienced since 1967, as shown in the Chart. The recessions of 1969–70, 1973–75, and 1980 are all clearly reflected by either slowdowns in the rate of growth of real personal income or outright decreases in real personal income. Thus, we see that over the period under consideration, real personal income has not grown as fast as might be desirable and that the three recessions during the period have resulted in definite setbacks for the state.

Comparison of Illinois with the US and Neighboring States

Although the data pictured in the Chart provide some insight into the experience of Illinois over the past 14 years, it is necessary to compare the performance of the state with other states and the entire country in order to obtain a true picture of the performance of the Illinois economy. It is certainly not very reasonable to expect outstanding performance from the Illinois economy while the rest of the country is foundering, and it should be a cause of concern for the residents of Illinois if Illinois founders while the rest of the country is experiencing a boom. The Table provides some data comparing Illinois, the US, and the Great Lakes states. (As defined by the Bureau of Economic Analysis (BEA), the Great Lakes states include Illinois, Indiana, Michigan, Ohio, and Wisconsin.)

The first column gives the ratio of total US personal income to total Illinois personal income. Obviously, this number must be greater than one since US personal income will always be greater than Illinois personal income. For example, the ratio for 1967 indicates that total US personal income was 15 times Illinois personal income. The trend that this ratio exhibits over the 14-year period shown is somewhat disturbing. This ratio has risen every year since 1967, which indicates that Illinois personal income is steadily becoming a smaller share of total personal income. Another way of saying this is that Illinois personal income has grown at a slower rate than US personal income for each year examined.

Column two gives the same ratio between the Great Lakes states and Illinois. The trend here is not as clear as the trend in column one but the overall change from 1967 to 1981 is a slight increase, once again indicating that Illinois personal income is growing more slowly than the personal income for the entire Great Lakes region. A closer examination of the data reveals that in normal years the ratio increases, but that either during or immediately following a recession the ratio decreases. This suggests that, over time, Illinois personal income is not growing as fast as the Great Lakes region, but that Illinois is not affected as severely and/or recovers faster from a recession than other states in the Great Lakes region.

Both of the ratios discussed above indicate that, at least in the long run, total personal income in Illinois is growing more slowly than personal income in other states. This does not necessarily indicate that the residents of Illinois are suffering a relative decrease in welfare, however, because the above ratios ignore changes in population which have occurred. Column three of the Table gives the ratio of per capita US personal income to per capita Illinois personal income. The first feature to notice about this ratio is that it is less than one for every year considered. This means that per capita personal income in Illinois has been higher than per capita personal income in the US as a whole for every year since 1967. Although this is a positive sign, we must be cautious about concluding that residents of Illinois enjoy a higher standard of living than the average American because, once again, we are observing nominal data. If prices are higher in Illinois than the average for the US then real per capita personal income in Illinois may not actually be greater than real per capita personal income in the US. Unfortunately, since a price index for the state of Illinois only is not available, it is impossible to make the necessary comparison. Price indexes for Standard Consolidated Statistical Areas (SCSA) are available, however, and a quick check of the Chicago-Northwest Indiana SCSA should provide a rough idea of the severity of inflation in Illinois compared to the nation. According to the January 1983 CPI Detailed Report issued by the BLS, the CPI for the Chicago-Northwest Indiana SCSA stood at 287.4 in 1982, while the CPI for the entire US stood at 289.1. This suggests that there has not been a significant difference in inflation between Illinois and the US since 1967, which suggests that the higher nominal per capita personal

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Table

Comparative Personal Income Data [PI], Illinois vs. US and Great Lakes Region, 1967–81

Year	US PI ÷ IL PI	Great Lakes PI ÷ IL PI	Per Cap US PI ÷ Per Cap IL PI	US Pop ÷ IL Pop	Per Cap Great Lakes PI ÷ Per Cap IL PI	Great Lakes Pop ÷ IL Pop
1967	15.3281	3.2444	0.8504	18.0287	0.9026	3.5943
1968	15.6618	3.2989	0.8640	18.2257	0.9149	3.5786
1969	15.7974	3.3145	0.8663	18.2352	0.9167	3.6148
1970	16.0041	3.2790	0.8738	18.3195	0.9048	3.6244
1971	16.0656	3.2856	0.8703	18.4563	0.9062	3.6251
1972	16.3435	3.3183	0.8793	18.5888	0.9151	3.6268
1973	16.3493	3.3244	0.8110	18.7686	0.9141	3.6364
1974	16.4136	3.2974	0.8674	18.9231	0.9060	3.6401
1975	16.4629	3.2619	0.8640	19.0562	0.8972	3.6356
1976	16.7045	3.3164	0.8723	19.1504	0.9148	3.6256
1977	16.8181	3.3501	0.8730	19.2666	0.9241	3.6255
1978	17.1357	3.3789	0.8822	19.4235	0.9308	3.6302
1979	17.3540	3.3829	0.8827	19.6597	0.9286	3.6428
1980	18.0279	3.3976	0.9074	19.8692	0.9300	3.6536
1981	18.1437	3.3467	0.9069	20.0065	0.9208	3.6344

Sources: BEA, BLS.

income in Illinois probably represents higher real per capita personal income in Illinois as well.

The second feature to notice about column three is that this ratio, like the others, has grown over the 14 years covered by this study. Although the ratio increases in some years and decreases in others in what appears to be a random fashion, the overall trend upward indicates that per capita personal income in Illinois is growing at a slower rate than per capita personal income in the US. This trend can be interpreted as a relative decrease in welfare in Illinois, with the reservation that our comparison of price movements is somewhat tenuous.

The ratio of US population to Illinois population is provided by column four. The fact that this ratio has risen every year since 1967 indicates that the population of Illinois is growing at a slower rate than the population of the US. This is significant because it strengthens the conclusion drawn from column three. The relative decrease in per capita personal income in Illinois has occurred despite an accompanying relative population decrease. This indicates that the relative decrease in total personal income shown in column one is significant enough to offset the relative population decrease.

Columns five and six of the Table provide the same per capita personal income and population ratios as columns three and four except in this case the comparisons are made between Illinois and the Great Lakes region. These figures do not provide a clear trend in any direction, except that there appears to be a slight tendency toward a relative population decline in Illinois. This decline, coupled with the relative decline in total personal income indicated by column two, has kept per capita personal income in Illinois fairly constant relative to the Great Lakes region. It is interesting to note, however, that the ratio shown in column five is less than one for all the years studied. Thus, just as per capita personal income for Illinois is higher than for the entire US, it is also higher than for the Great Lakes region.

Conclusion

The data examined in this study point to two main conclusions. First, in recent years residents of Illinois have enjoyed larger per capita personal incomes than residents of other states. Second, the trends indicated in both the Chart and the Table point toward an eventual elimination of this advantage, at least when compared to the country as a whole.

The residents of Illinois, along with their representatives, must work to reverse these trends if they wish to maintain their comparatively high standard of living. This is not an easy task, however, because the backbone industries of the Illinois economy, manufacturing and agriculture, are growing more slowly than the emerging service and high tech industries. One step Illinois can take toward solving this problem is to encourage these new industries to locate and grow here. This is not an adequate long-run solution, however, because the high tech and service industries are not expected to grow fast enough to offset the slow growth in manufacturing and agriculture. We thus must search for additional solutions if our position as an economic leader is to be maintained.

High Tech Competition: Illinois and Select States

Robert N. Schoeplein

High tech is in fashion. The national economy is perceived as changing, and high tech industries are seen to be on the cutting edge. High tech has become synonymous with jobs, income, and economic growth. Nor do recent concerns that high tech production workers may receive relatively lower wages, or that other displaced workers are not being absorbed into high tech, or that high tech jobs may move overseas seem to tarnish the high tech star.

So what is high tech? On closer scrutiny, the term has become such a popular catch-phrase that one is reminded of the repartee, "if you have to ask, don't bother." Much of the practical meaning of "high tech" is sensed, much like attitudes regarding "good business climate." But policy decisions in the private and government sectors require focus, and here the task of identifying high tech activity becomes more difficult. Two authors writing on high tech issues recently in this *Review* provide needed focus on the relevance of high tech to the Illinois economy. (John F. Schnell, "An Introduction to High Tech" and Joan C. Junkus, "Prospects for High Tech in Illinois," *Illinois Business Review*, Vol. 20, No. 3 [June 1983]) For all the hullabaloo about projected growth rates for high tech industries over the next 10 years, total estimated national employment in these industries would still represent a relatively small 4 percent of the nonagricultural labor force. Moreover, Illinois' immediate fortunes in the current recovery must continue to rest with heavy industry and transportation.

This article adds another dimension to the issue of high tech manufacturing in Illinois, that of comparative data on evolving high tech manufacturing among the states. The manufacturing sector nationwide will continue to decline secularly in relative importance, but employment in the high tech component of manufacturing will expand. One of the issues in job retention is whether Illinois is recording a proportionate share of the expanded jobs in high tech manufacture.

The identification of high tech activity involves an analysis of the character of innovation, research and development, and relative rates of growth in production. (The 20 three-digit SIC industries identified here as high tech are SIC 283, 348, and 357, the eight classes that comprise 36, 376, 379, and the seven classes that comprise 38.) Comparative data of evolving high tech manufacturing among the states is available at best for relatively broad three-digit Standard Industrial Code (SIC) industry classes. Each three-digit SIC class aggregates a rather diverse range of products and productive activity, if one were to focus alternatively on individual firms and plant sites rather than on collective industry totals. The industry classification "agricultural chemicals" does not satisfy the criteria of high tech in 1983, for example, though there are some firms engaged in highly sophisticated research and development. Nonetheless, the introductory look at Illinois high tech production, of necessity, must be by SIC classification.

The high tech industries as a group have been the high flyers among US manufacturing. Employment in high tech industries nationwide expanded by 25 percent during 1975–80, while all other manufacturing industries increased workers by 8 percent. High tech industries as a group were not immune from the ensuing recession; high tech employment in the aggregate remained about unchanged in the US during 1980–82, while national employment in non-high tech manufacturing fell off by 8.6 percent.

The relative changes in high tech employment vary significantly among the states, however. A few small states such as New Hampshire and Nevada have recorded impressive percent increases in high tech employment the past seven years, but the 10 largest industrial states continue to account for over 60 percent of nationwide high tech industries' employment. Table 1 illustrates the shifts in shares of high tech employment for these states between 1975 and 1980.

The sunbelt states are evident in generating an increasing share of high tech employment. The seven frostbelt states among the top 10 industrial states accounted for 45.4 percent of total US high tech employment in 1975, but their share had declined to 40.2 percent by 1980. Table 2 illustrates that while employment increased in Illinois' high tech industries between 1975 and 1979, the state's share of the US total declined because nationwide high tech activities

Table 1

Shares of US High Technology Employment in Selected States, 1975–80

10 Largest Industrial States	Percent of US High Technology Employment 1980	1978	1975
California	16.4	15.3	14.4
Florida	2.9	2.5	2.1
Illinois	6.5	7.1	7.9
Massachusetts	6.4	6.0	5.8
Michigan	2.2	2.7	2.5
New Jersey	5.0	5.2	5.7
New York	10.2	10.6	11.7
Ohio	4.1	4.9	5.1
Pennsylvania	5.8	6.1	6.7
Texas	4.3	3.6	3.3

Source: US Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (CES-790), March 1983.

Robert N. Schoeplein is an associate professor of economics at the University of Illinois at Urbana-Champaign. He is presently on leave serving as an economist for the State of Maryland.

Table 2

Employment in High Technology Industries and in Total Manufacturing: 1975–82 (in 000's)

	United States		Illinois			
			Manufacturing		High Technology	
Year	Manufacturing	High Technology	No.	% US	No.	% US
1982	18,848	3,644.5	1,019.0	5.4	208.0	5.7
1981	20,173	3,711.0	1,135.0	5.6	212.0	5.7
1980	20,285	3,643.0	1,239.2	6.1	237.0	6.5
1979	21,040	3,616.9	1,284.2	6.1	242.5	6.7
1978	20,505	3,419.2	1,265.2	6.2	241.3	7.1
1977	19,682	3,188.6	1,228.3	6.2	235.4	7.4
1976	18,997	3,013.4	1,190.9	6.3	225.7	7.5
1975	18,323	2,914.6	1,210.6	6.6	229.9	7.9

Source: US Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (CES-790), March 1983.

expanded at an even greater rate. Illinois' relative share has continued to decline through 1982. The eight-year decline in Illinois' share of national high tech employment is at a greater rate than the decline in relative shares for Illinois' nonhigh tech manufacturing industries.

Illinois high tech manufacturing presented is concentrated in the Chicago SMSA. The Chicago metropolitan area accounts for 66.5 percent of the state's nonhigh tech manufacturing employment, but 80.2 percent of high tech jobs are in the Chicago SMSA. Preliminary data would suggest that downstate high tech employment, while modest, is expanding at a greater rate than that of the Chicago area.

Why has Illinois' share of national high tech employment been declining secularly over the past 8 years? One is tempted to challenge the specification of those industries designated "high tech," but the addition of one or two other three-digit SIC industries on the argument that the specific production by firms in Illinois is high tech in nature probably would not appreciably change the aggregate picture. Plausible explanations are complex, dealing in part with determinants of industry location. Many high tech firms or subsidiaries are new and are unencumbered by existing facilities. Considerations in location decisions can include relative energy and transportation costs, area wage rates, tax climate, construction costs, education and productivity, location incentives, and so on.

But one can also identify specific factors that direct expanded high tech activity to specific states or regions. Research and development is the backbone of high tech innovation, and the federal government funded about 48 percent of total US (government and private sectors) R&D in 1980. (The federal government portion of total annual government and private sector research and development outlays has been secularly declining from a high of 66 percent in 1963.) Illinois ranked 16th among the states in the distribution of total federal R&D obligations for FY 1980, but an examination of US Department of Defense obligations is the telling mark. DOD research and development was 45.7 percent of the total federal R&D for that year. Illinois ranked 28th among the states with only 0.3 percent of DOD, R&D for FY 1980! Moreover, the changing composition of the federal R&D budget since 1980 is such that the Battelle Institute estimates DOD will represent 56.6 percent of federal R&D funding in calendar 1983.

One can also look at federal funding (all agencies) for research and development efforts at universities and colleges by state. Higher education institutions within Illinois were decidedly first in federal R&D funding among the 12 North Central states over the past decade. But here is where the good news ends. Schools in Illinois received 4.2 percent of total federal R&D obligations to universities and colleges in FY 1980, less than the national per capita average. Moreover, Illinois higher education's share of federal R&D has been slowly but secularly eroding, down from 4.7 percent in 1973.

Private sector "real" spending on research and development is expected to increase by 10 percent this year. (McGraw-Hill Economics Department, 27th Annual McGraw-Hill Survey of Business' Plans for Research and Development Expenditures, 1982–85 [May 1982]) This would be about twice the annual rate of real increase during 1975–80. Data on high tech production and employment among the states must reflect in some part the distribution of R&D

(continued on p. 12)

Table 3

Illinois Employment in Total Manufacturing and High Technology Manufacturing Industries, 1982

	Total Manufacturing Employment	Employment In 20 High Tech Industries	Ave. Annual Wages, All Manufacturing	Ave. Annual Wages, 20 High Tech Industries
SMSA Chicago	706	167	$17,815	$16,341
Rest of State	313	41	NA	NA
Total	1,019	208	$18,779	$16,945

Source: Illinois Department of Commerce and Community Affairs, Research Office.

REAL ESTATE DEVELOPMENTS

The Shared Appreciation Mortgage

Ike Mathur*

Soaring interest rates and housing prices in the mid-70s forced many residential home buyers and sellers to consider financing alternatives to the fixed-rate mortgage (FRM). The trend has continued unabated with the result that now one can identify over 100 different types of alternative mortgage instruments. One recent innovation in alternative financing involves equity participation by the lender. In this innovation — the shared appreciation mortgage (SAM) — the lender offers a mortgage rate below that for a competitive FRM in return for a prespecified interest in the appreciation of the market value of the secured property.

In a SAM, the loan rate is lower than that for a competitive fixed-rate mortgage. In return, the lender receives a specified portion of the appreciated value of the property when the loan matures, is paid off, or the property is sold or transferred.

The usual practice is to amortize a SAM over a time period of about 30 years, but to make the mortgage term no greater than 10 years. Since this procedure results in a balloon payment, the lender guarantees refinancing through any one of the mortgage plans offered by the lender.

The SAM lender has claim to two streams of returns. One is comprised of the loan amortization payments made by the borrower and the payment of the remaining balance when the loan matures or is paid off. With the exception of the duration of the loan, the magnitude and timing of this stream are known at the time that the loan is issued.

The second stream is comprised of zero payments during the time that the SAM is outstanding and a lump-sum payment when the loan matures or is paid off prematurely. This lump-sum payment consists of the lender's share of the appreciation on the property and can be viewed as contingent, deferred interest. Irrespective of whether the loan is held to maturity or prepaid, this portion of the return remains unknown until the loan is paid off.

A SAM, because it involves an interest rate that is lower than that for a competitive FRM, has relatively lower monthly mortgage payments. This feature makes SAMs especially suitable for first-time home buyers who may not otherwise qualify for a mortgage. SAMs may also be attractive for elderly buyers — especially those on fixed incomes — who want to apportion a higher percentage of their disposable income to nonhousing expenditures. SAMs allow lenders the flexibility of assuming an "equity" position with their loans and, thereby, providing themselves some protection from the effects of inflation. Similarly, pension funds and other potential secondary buyers of SAMs can hedge some of the effects of inflation by substituting SAMs for bonds in their portfolios.

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The SAM borrower faces a potential problem when the loan matures. It could be that refinancing the balance remaining at maturity may call for payments beyond the financial capabilities of the borrower. This situation may then result in a denial of financing for the borrower and a forced sale of the property. If refinancing at maturity is guaranteed, then the loan's default risk increases, making it a less desirable but still necessary proposition for the lender. From the lender's viewpoint, probably the greatest disadvantage is that the amount of appreciation cannot be known and is subject to the usual risk of price fluctuation.

Prior to maturity, SAMs produce lower cash flows than competitive FRMs. This may be a severe problem for financial institutions during periods of low margins and low excess net worth. At the macro level, if large amounts of pension funds move from bonds to SAMs, demand for corporate and government bonds would decrease, making these instruments relatively more expensive. SAMs may increase the demand for housing, and thus reduce the supply of capital into the industrial sector. Finally, since SAMs are designed to offer lower than conventional interest rates, they may compound the difficulties of the Federal Reserve System in regulating the flow and price of credit.

Valuation of Mortgages

For any financial asset to be rapidly acceptable in the marketplace, it must provide the supplier of capital with a fair expected rate of return on his/her investment. A fair return is one that, on risk-adjusted bases, is comparable to returns from alternative investments. Mortgages constitute financial assets for lenders and, therefore, need to provide lenders with fair rates of return.

The value of a SAM mortage is equal to the sum of the present value of principal and interest payments, the present value of the balance remaining at maturity or when the loan is paid off, and the present value of the appreciation share expected to be received.

Risk and Return Characteristics of SAMs

Mortgages are similar to bonds in that both involve periodic payments to the supplier of capital. Both provide an expected rate of return, since both types of assets are subject to "calls" by the borrower. If the mortgage or the bond is called prior to maturity, the lender may realize a lower-than-expected return. This risk of realizing less than the expected return is a function of duration. For a mortgage, duration is a weighted average maturity, and takes into consideration the magnitude as well as the timing of the payments. Normally the return on a mortgage is positively related to the magnitude of the cash flows received by the lender and negatively related to the duration of the mortgage. In a similar fashion, duration and return can also be estimated for the variety of securities available in the market and for the so-called market portfolio or average security.

The riskiness of a mortgage may be measured by the ratio of its duration to the market portfolio duration, times the "covariance" between the changes in the mortgage and portfolio rates of return divided by the "variance" of the change in the market portfolio rate of return. This measure has been derived from the contemporary theory of security valuation. It simply says that risk attaches to assets only to the extent that variations in returns cannot be diversified away.

Given homogeneous market perceptions regarding the appreciation share, the fluctuations in values of FRMS and SAMs will be directly related, although initial values for FRMs and SAMs may not be the same. If, for example, the lender can negotiate a relatively higher value for the appreciation share, then the SAM value will be greater than the value placed on a conventional fixed-rate mortgage or FRM. That is, above average returns due to a relatively higher value for the appreciation share will be captured as a windfall equity by the lender at time the loan is initiated. From there on, the variations in valuations for FRMs and SAMs will be directly related.

In terms of their risk, SAMs have less purchasing power risk than FRMs, and thus probably less interest rate risk. Inflation would erode the real value of a fixed-rate security, but lead to an increase in appreciation with the SAM. On the other hand, FRMs have less business risk; the stream of payments is fixed by the contract and is not subject to economic fluctuations.

Determinants of the Appreciation Share

The rate of return that a lender can expect to earn on a SAM is dependent on the interest rate charged on the loan amount, the loan amount relative to the value of the property, and the share of the appreciation received. Lenders can increase returns on SAMs by negotiating a higher appreciation share and/or by decreasing the loan-to-value ratio.

Assume that a SAM lender is interested in earning the same return on a SAM as on an FRM. Then, a FORTRAN computer program (available from the author) can be utilized to calculate SAM shares. The data inputs are values for the mortgage amortization period, mortgage term, the anticipated appreciation rate, the mortgage rate, the required rate of return, and the loan to value ratio. Given these data, the program calculates the SAM share that equates the SAM rate of return to that for a competitive FRM.

The Table exemplifies results from this program under one set of assumptions: loan to value ratio of 80 percent, an expected appreciation rate of 9 percent annually, mortgage term of 10 years, and amortization period of 25 years. For example, if the mortgage rate were 9.5 percent and the rate of return required by lenders were 12.5 percent, a SAM share of 30.9 percent would be necessary. On the other hand, if the required return to lenders were 13.5 percent, the needed SAM share would be 43.8 percent.

Table

SAM Share Required For Target Rate Of Return Mortgage Term of 10 Years[a]

Required Rate of Return	Mortgage Rate							
%	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5
10.50	13.7	9.2	4.6	0.0	NA	NA	NA	NA
10.75	16.2	11.6	7.0	2.3	NA	NA	NA	NA
11.00	18.8	14.1	9.5	4.7	0.0	NA	NA	NA
11.25	21.4	16.7	12.0	7.2	2.4	NA	NA	NA
11.50	24.2	19.4	14.6	9.8	4.9	0.0	NA	NA
11.75	27.0	22.2	17.3	12.4	7.5	2.5	NA	NA
12.00	29.9	25.0	20.1	15.1	10.1	5.1	0.0	NA
12.25	32.9	27.9	22.9	17.9	12.8	7.7	2.6	NA
12.50	36.0	30.9	25.9	20.8	15.6	10.4	5.2	0.0
12.75	39.1	34.0	28.9	23.7	18.5	13.3	8.0	2.7
13.00	42.4	37.2	32.0	26.8	21.5	16.2	10.8	5.4
13.25	45.7	40.5	35.2	29.9	24.5	19.1	13.7	8.2
13.50	49.1	43.8	38.5	33.1	27.7	22.2	16.7	11.2
13.75	52.6	47.3	41.9	36.4	30.9	25.4	19.8	14.2
14.00	56.3	50.8	45.3	39.8	34.2	28.6	22.9	17.3
14.25	60.0	54.5	48.9	43.3	37.6	32.0	26.2	20.4
14.50	63.8	58.3	52.6	46.9	41.2	35.4	29.6	23.7
14.75	67.8	62.1	56.4	50.6	44.8	38.9	33.0	27.1
15.00	71.8	66.1	60.3	54.4	48.5	42.6	36.6	30.6
15.25	76.0	70.2	64.3	58.4	52.4	46.3	40.3	34.2
15.50	80.3	74.4	68.4	62.4	56.3	50.2	44.0	37.8

[a] Mortgage amortized over 25 years. Mortgage term 10 years. Loan to value ratio 80 %. Appreciation rate assumed to be nine % annually.

* This article is a condensation of a study funded by the ORER, entitled "Evaluating Risk and Return Tradeoffs in Equity Participation Residential Financing," available upon written request from the Office of Real Estate Research, University of Illinois, 428 Commerce West 1206 S. Sixth Street, Champaign, IL, 61820.

Breaking up AT&T: A Closer Look

Carolyn Woj

Two goals are currently guiding the development of our nation's telecommunications policy, universal service and promotion of competition. Universal service has been the driving force of past policy, as expressed in the Communications Act of 1934, "to make available so far as possible to all the people of the US a rapid, efficient, nationwide, and worldwide...communication service with adequate facilities at reasonable charges." Promotion of competition is a new goal of US telecommunications policy made possible by recent technological advances in the industry. The pursuit of these two goals is leading to a restructuring of the telecommunications industry. The break-up of AT&T is one aspect of the transformation. This article discusses the historical developments that led to the restructuring, the new industry structure, and the impact of these changes on Illinois consumers.

Historical Developments

Historically, the market for local and long distance telephone service was viewed as a natural monopoly — meaning that one firm could provide the service at a lower cost than two or more firms. In the case of a natural monopoly it is preferable, therefore, to have one firm provide that service. Government then intervenes to prevent the monopoly from exploiting consumers by charging an excessively high price for their service. AT&T and its affiliated local telephone companies have been such regulated monopolies.

In addition to the natural monopoly aspect of phone service, an access externality was also thought to exist. An externality occurs when an effect of one economic agent on another is not taken into account by normal market behavior. In the case of a firm that pollutes the air, water, or land, costs that are not paid for by the firm are imposed on society. In the case of telephone service, as additional users enter the network, the benefit to existing customers is increased. In deciding whether to join the system, an individual compares only the costs and benefits that will accrue to him as a result of access. However, due to the access externality the benefit to society is greater than the benefit to the individual as a result of his or her entry. Social welfare reaches a maximum when the benefit to society from consuming one additional unit of the good is equal to the additional cost associated with producing one more unit of the good — the price-equal-to-marginal-cost criterion for efficient allocation of resources. In the the case of a positive access externality, in order to maximize social welfare the price of access should be reduced by an amount equal to the monetary value of the benefit that accrues to existing customers as a result of an additional individual joining the system. This rule implies setting price below marginal cost. The existence of an access externality therefore lends further support to the goal of universal service. Unfortunately, however, economic theory does not tell us how to measure the monetary value of benefits to existing customers when one more individual joins the system or how the price of access should be reduced.

How then was the goal of universal service promoted? Rates for local calls were subsidized through a tax on long distance rates, so that the price of long distance service was greater than marginal cost. Revenues from long distance calls were used to subsidize local service. The division of revenue settlements are currently worth approximately $21 billion. Illinois Bell's share is estimated at more than $700 million for 1983. On average the local Bell operating companies currently receive a subsidy of approximately $7 per line per month to provide a local connection to the long distance network.

What current developments have led to a change in this long-standing system? Advancements in telecommunications technology made it possible for new firms to enter the lucrative long distance market. The natural monopoly in long distance service broke down. Firms entered because the price charged by AT&T was greater than marginal cost. New firms could charge a lower price and still make a profit. This led to pressure on AT&T to cut their long distance rate and made it harder for them to subsidize local service via long distance revenues. As Charles L. Brown, Chairman of AT&T, stated in his 1980 Report to Shareholders,

> Traditionally, we have priced our service to support the goal of universal service. No longer is this policy tenable .... as they are relieved of the burden of contributing to the support of local service, long distance rates will come down. Deprived of that contribution, local rates will go up.

AT&T opposed allowing competition in the long-distance market:

> AT&T argued that its competitors had the best of both worlds from a cost standpoint, that this practice was improper for many reasons and if allowed to persist, would force a dramatic price shift away from the subsidy now offered to basic users. The reason, of course, is that this artificial pricing structure allows the competition to capture the long distance portion of the market that is intentionally over-priced to subsidize basic service. (Bell System "Access Charges" pamplet.)

The courts, however, did not agree with Bell's stance, and in January 1978 the US Court of Appeals ruled that AT&T must grant competing long distance carriers the right to use local Bell facilities. Competition had entered the long distance telecommunications market.

Recent Government Decisions

There are two recent government decisions that will influence the restructuring of the telecommunications industry. The first involves a US antitrust suit while the second is the result of a decision by the Federal Communications Commission.

In November 1974 the US government accused AT&T of violating Section 2 of the Sherman Act by conspiring to monopolize the telecommunications service and equipment market. *(US vs. AT&T, Western Electric, and Bell Laboratories...,* Civil Action 74–1698.) On 8 January 1982, AT&T and the Justice Department agreed to a settlement of this suit whereby the local Bell operating companies would be divested from AT&T. The divestiture is scheduled for 1 January 1984. The consent decree requires that the division of revenues be terminated at this time.

The FCC decision of 22 December 1982 states that payments by long distance companies for support of local service be phased out over a five-year period, beginning in 1984. In a ruling of 27 July 1983, the FCC provided a plan to cover the cost of local service formerly paid for by long distance companies. The plan imposes an access fee on the user of local service as follows: Residential customers pay $2 per line per month in 1984, $3 per line per month in 1985, $4 per line per month in 1986. Business customers pay $6 per line per month in 1984–1986. After the three-year period the plan will be reevaluated and future plans made. "Access charges will represent anywhere from 24–40 percent of an individual Bell operating company's revenues." (Bell System pamphlet on Access Charges).

Impact of Government Decisions

It is important to remember that there are no new costs resulting from divestiture. Rather there will be a realignment in rates so that they reflect more accurately the true cost of providing service. Some people have expressed a concern that the goals of universal service and promotion of competition may be in conflict. They feel that we will increase competition in the long distance market at the expense of an increase in local rates and jeopardize the goal of universal service. Changes in the method of billing may help to resolve this conflict. In order to assess the impact of the FCC decision and the divestiture agreement in as coherent a manner as possible, I will examine the effect of these changes on AT&T, the local Bell telephone companies, and stockholders.

Effects on AT&T

AT&T had revenues of 65 billion and total assets of $148 billion as of 31 December 1982. On 1 January 1984 AT&T will divest itself of its 22 local operating companies. The new AT&T will consist of 5 parts: AT&T Interexchange or ATTIX (long distance phone service division), Bell Laboratories (a research division), Western Electric (equipment manufacturer), AT&T Information Systems (marketer of equipment), and AT&T International (overseas marketer of equipment and services).

After divestiture, AT&T can enter any business it chooses, and Western Electric will be able to sell equipment to companies other than local Bell operating companies. A 1956 consent decree had formerly limited AT&T to engage in only communications business subject to regulation and Western Electric to sell only to Bell Systems companies. AT&T is taking advantage of its new freedom. It recently announced a joint venture with Coleco Industries whereby they will develop a home video game service delivered via telephone wires.

AT&T faces intense competition. The company's new slogan is "More than a new look, a new outlook," and AT&T will need a new outlook. It will no longer be a regulated monopoly. There is already fierce competition especially in long distance service and telecommunications equipment manufacturing.

Western Electric will no longer have a guaranteed clientele (the 22 local operating companies). It will have to compete for its share of the market and right now, it is not in the best position to do so. It has a small sales force for a company of its size, and Western Electric products were always built for durability, while its competitors are competing on the basis of price. It also has outmoded factories and highly paid union labor in contrast to its competitors who have comparatively new facilities and a lower-paid labor force.

The long distance market is opening up to competition. "We see a wide-open market in communications, because the barriers to market entry have almost all disappeared," stated Robert P. Reuss, chairman of Centel Corp. The following are AT&T's current competitors in the long distance market:

Sattelite Carriers

1. American Satelite
2. GTE
3. Hughes Corp.
4. RCA Communications
5. Satelite Business Systems
6. Western Union
7. Vitalink

Other Common Carriers

1. Cylix
2. Equatorial Communication
3. Graphic Scanning
4. GTE Telenet
5. ITT
6. MCI
7. Southern Pacific Communications
8. Starnet
9. Tymnet
10. Uninet and Isacom

Typically long distance carriers have been charging 30–50 percent less than AT&T on popular routes. Estimates in the Standard and Poor's Industry Survey place the market share of AT&T's competitors at approximately 4 percent for 1985.

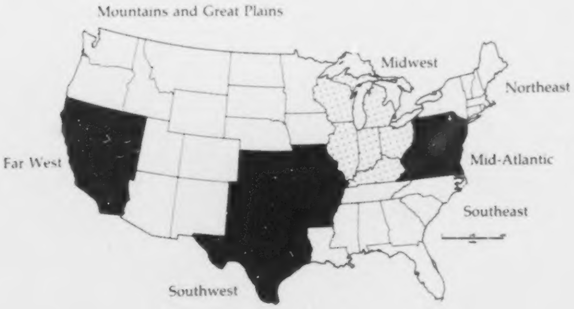
Effects on Local and Regional Bell Telephone Companies

The 22 local Bell Telephone Companies divested of AT&T on 1 January 1984 are being organized into seven regional holding companies (see the map).

The regionals will control the yellow pages and "charge-a-call" phones. The Bell name and logo will belong to these companies, rather than to AT&T. Use of AT&T's existing patents and future patents issued over the next 5 years is also guaranteed for the local Bell operating companies. In addition, these companies are able to sell telecommunications equipment and engage in various other business enterprises. As the chief operations officer of Bell South put it, "We plan to sell terminal equipment, from telephones to private branch exchange devices, and we expect to develop various joint ventures."

Another outcome of divestiture will be the development of LATAs (Local Access and Transport Areas). Calls within LATAs will be handled by the local carrier. Calls between LATAs, however, must be serviced by a long distance carrier. The development of LATAs reflects a change in the way the telecommunications industry is structured. Costs associated with serving the area within a LATA are thought to exhibit natural monopoly characteristics and require regulations while costs associated with inter-LATA service do not. The industry structure can be viewed as LATAs served by a monopolist within the LATA and by competitive firms between LATAs.

Regions of the Seven New Holding Companies of the Bell System



The Seven New Regional Telephone Companies and Their Constituent Operating Units

1. US West
    - Northwestern Bell
    - Mountain Bell
    - Pacific Northwest Bell
2. Pacific Telesis (Group)
    - includes Nevada Bell
3. Southwestern Bell Corporation
4. Bell South
    - Southern Bell
    - Southeastern Bell
5. Bell Atlantic
    - Bell of Pennsylvania
    - Diamond State Tel.
    - Four Chesapeake and Potomac Companies
    - New Jersey Bell
6. NYNEX
    - New York Tel.
    - New England Tel.
7. Ameritech (American Information Technologies)
    - Illinois Bell
    - Indiana Bell
    - Michigan Bell
    - Ohio Bell
    - Wisconsin Tel.

Source: *The New York Times*, 9 August 1983.

The Outlook For Our Region

Ameritech (American Information Technologies Corp.), our regional holding company, consists of five local Bell operating companies, Illinois Bell, Indiana Bell, Michigan Bell, Ohio Bell, and Wisconsin Telephone. These five companies serve an area with 30 million people and will employ 80,000 workers. Ameritech recently announced that it is forming Ameritech Mobile Communications to provide cellular radio technology services. It is the first company in the nation to offer this service.

Ormand J. Wade is the new president of Illinois Bell. This company serves 80 percent of the state's telephones and 3.5 million customers. Its 1982 revenues equaled $2,978.7 million. According to Wade, Illinois will be split into 16 LATAs, and more instate phoning for local calls will be long distance. In 1984 billing for local calls, long distance service, and equipment rentals will be handled by Illinois Bell in a monthly bill statement broken down by category. Billing practices after 1984 are undecided, and the possibility of three monthly bills exists. A move toward measured-service billing rather than a flat monthly rate is forthcoming in the next few years.

Some areas, including Chicago, are already involved in measured-service billing. Measured service means that bills are based on the number of calls, minutes talked, time of day, and day of the week. Studies indicate that most bills decrease when measured service is used. The consumer has more control and an incentive to keep the number of calls down. The move toward measured-service billing is one step toward the goal of universal service. Individuals will be able to gain access to the system for a nominal fee and will be able to use the phone for emergencies or other reasons on a call-by-call basis. Measured services is a means of insuring that the goal of universal service is not abandoned. Whether it will be totally effective remains to be seen.

New prospects for Illinois Bell's future are based on development of vertical services rather than increasing the number of phones it serves. The company plans to develop new products and work in joint ventures with cable and data base companies. One new item considered is home information systems. Through the use of a home computer terminal this system enables an individual to perform banking operations, to contact data bases, to order airline tickets, and so forth. Illinois Bell will also sell phones in the residential phone market.

Illinois Bell plans to play a large part in the information age exploding around us. However, Illinois Bell and the other local Bell operating companies will not be immune to competition. "There is no part of the divested Bell Operating Companies revenue stream that is not subject to competition," remarked AT&T assistant vice president James E. Hennessy. New technology has been developed making it possible to bypass the local networks. For example, New York City currently buys lines from Manhattan Cable TV Inc. It plans to build a private communication network connecting city offices using cable TV lines. Long distance carriers applied for licenses to set up cellular mobile telephone networks that will compete with the local telephone companies trying to market cellular radio. Yes, competition exists in the local market too! Large telecommunications customers are becoming increasingly aware of other possibilities open to them. The idea of large customers bypassing the local network is very real and a bit disconcerting for the small user. As Ormond Wade explained it, there is a great co-mingling of services; and if the large users bypass the system, the costs that were originally born by them will be passed on to the remaining customers through rate increases.

Effect on Stockholders

AT&T stockholders will receive one share in each of the seven regional holding companies and 10 shares in the new AT&T for every 10 shares of AT&T currently held. Individuals holding fewer than 10 shares of AT&T currently will receive cash. The new stock certificates are scheduled to be mailed out in February 1984. The holding companies are to announce their dividend policy for 1984 and projected first quarter earnings in October or November of 1983. The new stocks will begin trading on a when-issued basis in November. It is impossible to say whether the dividends from the new AT&T and regional holding companies will, when added together, be greater than, equal to, or less than the $1.35 that AT&T stock is currently paying in dividends. AT&T is creating a new subsidiary, American Transtech, to handle shareholder services and maintain shareholder accounts for both AT&T and the regional companies in this transition period. Also approximately one month before the new stock certificates are mailed out, an "option card" will be mailed to all shareholders. This card will allow them to consolidate their holdings in the companies of their choice rather than the scheduled stock split if they choose to do so.

Another aspect of divestiture that deserves attention is the question of whether divestiture will raise the cost of debt and equity capital to the local Bell operating companies. This question is important because state regulators currently set rates such that the local telephone company can earn a certain rate of return on capital, as follows: $R - C = pk$, where R = revenues from providing service, C = costs from providing service, and, pk = return on capital.

If C increases through an increase in the cost of capital, regulators must allow rates to increase in order for the firm to earn the specified return on capital = pk. Rate-hike requests currently in the state public utility commission are being defended on these grounds. Why not just decrease pk ? If we do this, the industry will not be as profitable and the quality of service can be expected to decline.

The investment community and most financial analysts agree that when the local companies are divested, their cost of capital will increase. After 1 January 1984 the local companies will no longer be under the "Bell umbrella" and have easy access to Bell funds. AT&T in its suit against the Justice Department claimed that "because they are part of the integrated system, all Bell operating units have access to capital funds at a lower cost than if they were unaffiliated companies."

An alternative view of cost-of-capital is proposed in *Breaking Up Bell*. In this book David Evans and Michael Rothschild argue that the cost of capital will not increase as a result of divestiture. They believe that the average cost of capital for Bell Telephone companies is roughly the same as that of the independent telephone companies. After divestiture they claim that the Bell companies will have lower debt-equity ratios and hence higher bond ratings than the independents, leading to lower interest rates for Bell companies. The third argument they offer is that currently these companies are packaged in one stock and that unbundling the package (according to financial theory) will not lead to a decrease in the appeal of the companies to stockholders. (Interested readers can consult *Breaking Up Bell: Essays on Industrial Organization and Regulation*, edited by David S. Evans for more detail.)

New Legislation Under Consideration

New legislation is being considered in Congress to insure that the goal of universal service is not abandoned. Most of the plans being considered involve long distance companies paying a higher fee to access the local network and thus to subsidize local services. These plans would counteract the FCC decision on access charges whereby the long distance companies were relieved of subsidizing local service.

Illinois Bell has argued that Congress's policy would lead to much higher rates than would the FCC plan because the possibility of bypass is greater. If bypass occurs, these costs must be covered by rate increases to the remaining consumers. Joseph Gillan of the Illinois Commerce Commission has also advanced an economic argument against long distance companies paying the access charges based on the access externality argument. According to his reasoning, the local exchange provides access to consumers ("line side access") and long distance companies, "trunk side access." The long distance carriers connect different exchanges and as such greatly increase the benefit to existing subscribers to the local system.

They increase the benefit more than if one additional individual in the local community decided to subscribe. Given this "then the correct pricing strategy to pursue according to access theory, would be one of subsidizing the access costs of those subscribers which add the greatest value to the system, namely the interexchange carriers." ("Externalities, Competition and Telecommunications Pricing: Access and You Shall Receive" by Joseph Gillan, working paper.)

Conclusion

The epochal break-up of AT&T and the recent FCC decisions have brought about a revolutionary change in the structure of the telecommunications industry. The transition is taking place now, and all the rules of the game have not yet been decided. Alfred Kahn affirmed,

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It is not easy to be either a regulator or a telephone company executive these days. Competition complicates all our lives, but its beauty is that it forces us to comply with the dictates of economic realities and its consolation is that to the extent we do, there will be improved welfare for most of us and efficient ways of taking care of the ones who fall behind and genuinely deserve help.

The goal of universal service and promotion of competition are not necessarily in conflict. We do, however, need to think about efficient ways of helping those who do become worse off as a result of deregulation.

(continued from p. 5)

expenditures, but there is no basis to discern any specific biases for or against the State of Illinois

In summary, there are several necessary perceptions of high tech manufacturing activity in Illinois, each a piece of the grand mosaic that is concerned with job creation for Illinois residents. As many as a million new jobs will be created in high tech manufacturing nationwide over the next decade. Illinois' share of national high tech employment has declined over the past eight years, however. Geographic patterns of federal government funding for research and development, particularly defense research, suggest that Illinois has a challenge to reverse further deterioration in comparative rankings among the states. There is much promising high tech activity in the state, but notice of these expanding efforts by specific firms tends to be overwhelmed by analyses that focus on broad industry aggregates.

ILLINOIS BUSINESS INDEXES

	Percent Change July 1982-July 1983	July 1983	June 1983	May 1983	April 1983	July 1982	June 1982
Coincident indicator (1969=100)	-.19	101.01	100.62	98.4	98.69	101.2	104.88
Employment-manufacturing (in thousands)	-3.79	975.8	973.1	967.6	949.8	1014.2	1032.4
Average weekly hours-manufacturing	3.08	40.2	40.6	40.1	40.1	39.0	39.2
Weekly earnings-manufacturing	8.64	$392.35	$395.04	$383.76	$388.17	$361.14	$362.60
Help wanted advertising-Chicago (1967=100)[a]	35.00	54	47	44	39	40	45
Help wanted advertising-St. Louis (1967=100)[a]	42.86	50	53	42	39	35	37
Retail sales (in millions)[b]	6.85	$4,708	$4,729	4,835	$4,496	$4,406	$4,471
Coal production (in thousands)	-16.28	3,615	4,720	4,674	4,692	4,318	5,094
Petroleum production (in thousands)	3.67	2,540	2,460	2,480	2,400	2,450	2,040
Vendor performance, (percent)[c]	24.4	52	52	52	52	41.8	37.7
Building permits (in thousands)							
Residential housing units	121.44	3.853	2.928	2.867	2.586	1.74	1.24
Value of residential housing	150.06	$194,364	$166,952	$161,979	$132,459	$77,726	$61,722
Value of nonresidential construction							
Industrial buildings	8.65	$13,359	$10,000	$30,534	$6,498	$12,296	$20,989
Office, banks and professional buildings	69.96	$48,877	$24,178	$22,319	$26,682	$28,758	$33,278
Stores and other mercantile buildings	26.41	$18,966	$11,744	$31,283	$13,997	$15,003	$11,714
Other[d]	17.7	$3,742	$2,801	$2,830	$2,295	$96,426	$94,816
Consumer price index							
North Central US[e]	3.11[f]	-	162.5	-	161.2	-	157.6
North Central/population more than 1,250,000[e]	3.51[f]	-	165.2	-	163.6	-	159.6
North Central/population 385,000 to 1,250,000[e]	4.31[f]	-	162.0	-	161.1	-	155.3
North Central/population 75,000 to 385,000[e]	2.00[f]	-	158.3	-	157.3	-	155.2
North Central/population less than 75,000[e]	1.85[f]	-	159.3	-	158.1	-	156.4
Chicago (1967=100)	2.22	299.6	298.6	296.3	295.3	293.1	291.8
St. Louis (1967=100)	3.14	299.3	-	295.4	-	290.2	-
		1983:I	1982:IV	1982:III	1982:II	1982:I	1981:IV
Personal income (in millions)	5.0[g]	$142,988	$141,560	$140,832	$138,355	$136,518	$136,636

[a] The Conference Board, *Help Wanted Advertising*, July 1983. [b] Latest month projected by BEBR. [c] Seasonally unadjusted beginning in December 1982. [d] Definition changed December 1982; percent changes use consistent definition. [e] December [illegible]77=100. [f] Percent change between June 1982 and June 1983. [g] Percent change between 1982:I and 1983:I.